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PROBLEMS OF AMERICANS IN MASTERING THE PRONUNCIATION OF EGYPTIAN ARABIC.

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REPORT NUMBER NDEA-VI-137 PUB DATE 60
EDRS PRICE MF-$0.18 HC-$2.88 72P.

DESCRIPTORS- *ARABIC, *PRONUNCIATION, *LANGUAGE INSTRUCTION, DICTION, LANGUAGE RESEARCH, LINGUISTICS, *SPEECH HABITS, *PHONEME, DISTRICT OF COLUMBIA

THE DIFFICULTIES ENCOUNTERED BY SPEAKERS OF AMERICAN ENGLISH IN ATTEMPTING TO MASTER THE PRONUNCIATION OF EGYPTIAN ARABIC WERE ANALYZED DURING THE REPORTED RESEARCH. THE LANGUAGE UNDER CONSIDERATION WAS THE URBAN COLLOQUIAL ARABIC OF THE EGYPTIAN DELTA. THIS STUDY DEALT WITH THE SEGMENTAL PHONEMES ONLY, WITH SOME REFERENCE TO STRESS AND OCCASIONALLY TO INTONATION. AN INTENSIVE COURSE IN EGYPTIAN ARABIC WAS TAUGHT AT THE GEORGETOWN UNIVERSITY INSTITUTE OF LANGUAGES AND LINGUISTICS DURING 1957-58. ONE GROUP OF NINE STUDENTS WAS OBSERVED FROM THE 2D MONTH OF THEIR COURSE UNTIL THE 8TH MONTH, AND ANOTHER GROUP OF EIGHT STUDENTS FROM THE BEGINNING OF THEIR COURSE UNTIL THE END OF THE 2D MONTH. THIS REPORT DESCRIBES THE ERRORS OF THE STUDENTS IN AUDITORY AND ARTICULATORY TERMS AND ATTEMPTS TO ACCOUNT FOR THESE MISHEARINGS AND MISPRONUNCIATIONS BY RELATING THEM TO DIFFERENCES BETWEEN THE PHONEMIC PATTERNS OF EGYPTIAN ARABIC AND AMERICAN ENGLISH. (WB)

ED003867

137

Problems of Americans in Mastering the Pronunciation of Egyptian Arabic

CENTER FOR APPLIED LINGUISTICS

of The Modern Language Association of America

WASHINGTON D.C. 1960

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Problems of Americans in Mastering the Pronunciation of Egyptian Arabic (M.S. Thesis)

by NANCY M. KENNEDY

CENTER FOR APPLIED LINGUISTICS

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SPECIAL ACKNOWLEDGMENT: This work has been published with the permission of the author and under the provisions of a contract between the U.S. Office of Education, Department of Health, Education and Welfare, and the Center for Applied Linguistics.

BIBLIOGRAPHICAL NOTE: This work is Miss Nancy M. Kennedy's dissertation submitted in 1958 to the Faculty of the Graduate School of Georgetown University in partial fulfillment of the requirements for the degree of Master of Science.

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ACKNOWLEDGMENTS

I would like to express my deep appreciation to Dr. Richard S. Harrell, my thesis supervisor, for his guidance and encouragement during the research which preceded the writing of this thesis. I am particularly grateful for his thorough inspection of the first draft of this paper, and his careful corrections and detailed criticisms. My thanks are also addressed to Mrs. Laila Tewfik, the Egyptian informant who taught the class at Georgetown during which I obtained most of the data for this paper. Her willingness to devote time outside of the class to discussion and experimentation has been a valuable aid in my research. Thanks are also due to Mr. George Selim of Georgetown, who was kind enough to work with me as an informant during the last phases of the project. A final word of appreciation must go to the students of the course in Egyptian Arabic, who were ready at any time to discuss their pronunciation problems and to pronounce whatever vocabulary items I needed to hear.

Nancy M. Kennedy

CHAPTER I

AIMS AND METHODS

Purpose of the study

The writer's purpose is to analyse the difficulties encountered by speakers of American English in attempting to master the pronunciation of Egyptian Arabic. The results of such a study should be of assistance to all persons engaged in the teaching of Egyptian Arabic to Americans.

The speech used as a model throughout the project was that of an educated informant from Cairo, Egypt. A second informant, from Alexandria, Egypt, was also consulted during the final stages; no point arose on which his speech differed significantly from that of the first informant. The language under discussion is thus the urban "colloquial" Arabic of the Egyptian delta, the language used for everyday conversation, interspersed with such occasional "classicisms" as are expected of an educated speaker.[1]

This study deals with the segmental phonemes only, with some reference to stress and occasionally to intonation. No detailed study of intonation difficulties is attempted.

Procedures used

An intensive course in Egyptian Arabic was taught at the Georgetown University Institute of Languages and Linguistics during the academic year 1957-1958.[2] The writer was able to observe one group of nine students from the second month of their course until the eighth month, and another group of eight students from the beginning of their course until the end of the second month. Both groups were observed several times a week during the early stages, and periodically thereafter.

There were also several sessions during which this writer worked with one or the other of the informants, sometimes including some students from the class, and occasionally other Americans who had not studied Arabic. Another, minor source of information was the notes and recollections of the writer, preserved from about eight months of weekly Arabic lessons during her stay in Egypt, 1953 to 1955.

Most of the examples used in this paper to illustrate difficulties of students are taken from the textbook used in the course: Lessons in Colloquial Egyptian Arabic, by Laila Tewfik and Richard S. Harrell (copyright Georgetown University Institute of Languages and Linguistics, 1957). Some other examples

were suggested by Richard S. Harrell, The Phonology of Colloquial Egyptian Arabic (New York: American Council of Learned Societies, 1957), or were supplied by the informant when the need arose.

The students in the course represented such different sections of the United States as California, Texas and Vermont. In general, however, their errors and difficulties resulted from "general American" speech habits rather than from special dialectical peculiarities. In the few cases where students from one region had notably more difficulty than the others with a particular sound, as in the case of Southerners and certain long vowels, this fact is mentioned in the paper.

Some of the students had studied other foreign languages previously; others had not. No consideration is given to this factor in discussing students' difficulties.

The general approach of this paper is to describe the errors of the students in auditory and articulatory terms; i.e., to describe how the sounds they were apparently hearing and the sounds they were producing, which did not satisfy the informant, differed from the speech of the informant. An attempt is made to account for these mishearings and mispronunciations by relating them to differences between the phonemic patterns of Egyptian Arabic and American English. Whenever possible, the devices by which students eventually achieved a satisfactory sound, either those evolved by students or those suggested by a teacher, are recorded. In a very few cases other techniques, which were not used but which the writer considers worth trying, are proposed.

Limitations of this study

The difficulties described in this study are chiefly those observed during class sessions. While some effort was made to test for other possible difficulties - for example, all of the possible consonant clusters were tested - there remains the likelihood that other sequences of Egyptian speech, not included in these lessons, would reveal additional difficulties not encountered during this project. One can only assume that the very large sampling of text covered during the course showed up at least the major difficulties, and that those omitted are minor.

Lacking statistics on the frequency of the various Egyptian phonemes, it has not been possible to indicate, for the benefit of teachers, those difficulties with individual phonemes, phonemic contrasts, or sequences of phonemes, which are most crucial from the point of view of the frequency with which they will be encountered by the student.

An obvious and ever-present handicap which complicated the noting and describing of errors must be mentioned here. Since this writer is not a native speaker of Egyptian Arabic, it was necessary to depend upon the informant to indicate whether or not a student's pronunciationwas acceptable. While the writer was generally able to detect differences between the speech of the informant and the unacceptable imitation of the student, there was no guarantee that these differences were the same ones to which the informant was reacting. The comments of the informant were frequently helpful but not always, and naturally the class could not be interrupted in order to discuss the point. In discussions at a later time it was difficult for all parties to remember the details. Furthermore, the informant herself was sometimes unable to explain precisely what she was objecting to.

A corollary to this difficulty was the problem of whether a pronunciation which the informant did not criticize could actually be considered satisfactory. There was always the possibility that the informant might be tired or discouraged at that particular time, and hence less demanding than usual.

It should be noted that no attempt was made to set up a standard of "comprehensibility" for students' pronunciation; everything the informant criticized was considered an error. For the linguist, a further theoretical question arises: should the failure to hear in terms of the phonemic pattern of the target language be considered an error, if the informant does not object to the pronunciation? This question will be considered again in the concluding section of this paper.

Phonetic preliminaries

The following vowel symbols, used in this paper, are taken from a list of George L. Trager.[3]

	Front		Central	Back	
	Unrounded	Rounded	Unrounded	Unrounded	Rounded
High	i		ɨ		u
Lower-high	ɪ		ɨ̞		ʊ
Higher-mid	e	ø			o
Mean-mid	ɛ̝		ə		ɤ
Lower-mid	ɛ			ʌ	ɔ
Higher-low	æ				
Low	a		ä	ɑ	

The following additional symbols are used:

V = any vowel

C = any consonant

: = vowel length

/ / = slant lines enclosing phoneme symbols

[ ] = brackets enclosing phonetic symbols

^ = The vowel is slightly higher than the quality indicated by the preceding vowel symbol

˅ = The vowel is slightly lower than the quality indicated by the preceding vowel symbol

< = The vowel is slightly more fronted than the quality indicated by the preceding vowel symbol

> = The vowel is slightly more backed than the quality indicated by the preceding vowel symbol

˘ (over a vowel) - the vowel is short

CHAPTER II

CONSONANTS

Plan of presentation of data

Each consonant phoneme is treated in a separate section, with the exception of the emphatic consonants /t̤ d̤ s̤ z̤ r̤ l̤/, each of which is mentioned briefly in the same section as its unemphatic counterpart.[4/] Problems of emphasis are treated in more detail in Chapter VII.

The discussion of each phoneme is subdivided into the following three parts: Description (of allophones of the phoneme); Difficulties in hearing and producing; Incorrect substitutions made by students. The Arabic words listed under each type of incorrect substitution are words in which the substitution was actually made by Americans.

Transcription

The phonemic transcription used in this chapter and all following ones is that used by Laila Tewfik and Richard S. Harrell in

Lessons in Colloquial Egyptian Arabic, the textbook used for the course in Egyptian Arabic at Georgetown. Words taken from sources other than this textbook have been spelled according to the same system. The transcription in this paper differs from that of the textbook in two ways. First, no sequence of phonemes between slant lines begins with a vowel. Words which are spelled with an initial vowel in the textbook are spelled here with initial glottal stop, if they occur at the beginning of the sequence, because as citation forms they would be pronounced with initial glottal stop by Egyptians. Second, the symbol /q/, used in the textbook to represent both the voiceless uvular stop and those glottal stops which correspond to voiceless uvular stops in Classical Arabic, is here used only for the few occurrences of the uvular stop which are normal in this dialect. In all other places the textbook symbol /q/ is replaced by /'/, the symbol for glottal stop.

As in the textbook, the definite article, /il/ (or one of the forms /it iṭ ik id iḍ ig is iṣ iš iz iẓ ir in/ before /t ṭ k d ḍ g s ṣ š z ẓ r n/ respectively, is written with no space between it and the following noun or adjective. In cases where the article combines with a preceding preposition, as in /miš šibbaak/ "from the window", a space is left between article and noun, as in the textbook. This space has no phonemic significance.

The Consonant Phonemes of American English [5]

		Bilabial	Labiodental	Interdental	Dental	Alveolar	Palatal	Velar	Uvular	Pharyngeal	Laryngeal
Stops	Voiceless	p				t		k			
	Voiced	b				d		g			
Affricates	Vl.						č				
	V.						j				
Fricatives	Vl.		f	θ		s	š				h
	V.		v	ð		z	ž				
Trills											
Laterals						l					
Nasals		m				n		ŋ			
Semivowels		w				r	y				

The Consonant Phonemes of Egyptian Arabic [6]

		Bilabial	Labiodental	Interdental	Dental	Alveolar	Palatal	Velar	Uvular	Pharyngeal	Laryngeal
Stops	Voiceless				t ṭ			k	q		'
	Voiced	b			d ḍ			g			
Affricates	Vl.										
	V.										
Fricatives	Vl.		f		s ṣ		š		x	ḥ	h
	V.				z ẓ				ġ	ʕ	
Trills					r ṛ						
Laterals					l ḷ						
Nasals		m			n						
Semivowels		w					y				

/t/ and /ṭ/

Description [7]

Voiceless dental stop. Little aspiration.

Difficulties in hearing and producing

Not much difficulty. Students at first produced an alveolar /t/, with strong aspiration in initial position, as in English. They were able to satisfy the informant by reducing the aspiration, after this factor was explained to them. Thereafter the problem was one of <u>remembering</u> to produce an unaspirated /t/, rather than of being able to produce it.

In the case of /ṭ/, as with the other emphatics, the factor distinguishing emphatic from non-emphatic consonant seemed to be the quality of the preceding and following vowels. (See Chapter VII.)

Incorrect substitutions made by students

/t/ for /ṭ/. This error occurred, for example, in:

/yiṭiir/ "he flies" /waṭaniyya/ "nationalism"

Mistakes in the opposite direction, i.e., substituting /ṭ/ for /t/, were very infrequent. Although the writer anticipated that students might confuse /t/ with /d/, because of the lack of aspiration of the former as compared with English /t/, only one occurrence of this error was observed.

/k/

Description

Voiceless stop, palatal before front vowels, volar before back vowels.

Difficulties in hearing and producing

There was no difficulty in producing a recognizable /k/, because of its phonetic similarity to American /k/. However, the informant objected frequently to the strong aspiration in the initial /k/ of the students: to what they came to call a "crackly /k/", as opposed to a "plain /k/". Although all could produce a "plain /k/" when they put their minds to it, they had difficulty remembering this refinement, even after six months of the course.

In all the record of observations, there is no example of confusing /k/ with any other phoneme, except for one occasion when several students failed to hear a final, postvocalic /k/ which was unreleased:

/ṣahbak/ "your friend"

There was no example of a replacement of /k/ by /q/.

/q/

Description

Uvular stop. Voiced or voiceless before voiced obstruent; voiceless elsewhere.

Difficulties in hearing and producing

Since this phoneme is used consistently by all speakers in only two words, /qur'aan/"Koran" and/ qaahira/"Cairo"[8], and is rather rare even in the educated speech of the informant who taught the course under discussion, /q/ cannot be ranked as a major problem, even though beginning students find it exotic.

/q/ was very difficult at first for most students, but once they had achieved it a few times and practiced it a little, they were able to produce it with great accuracy and little effort. Apparently students achieved /q/ simply by trying to say a /k/ farther and farther back, or by trying to pull their tongue straight back as far as possible. /q/ was easiest before /a/, more difficult before /u/, and hardest of all before /i/ and especially /ii/. A few students, who produced a /q/ effortlessly almost from the beginning, announced that they used to make the sound when they were children, in order to imitate the sound of a liquid being poured from a bottle.

Incorrect substitutions made by students

/k/ for /q/. At the beginning of the course this was a universal difficulty. However, after students had mastered the production of /q/, and had become familiar with the vowel allophones preceding and following it (see Chapter V), this contrast presented little difficulty.

/taqriir/ "report" /mawqifna/ "our position"

/'/

Description

Glottal stop.

Difficulties in hearing and producing

Production of the glottal stop was not difficult. Initial glottal stop is usually satisfactorily rendered by pronouncing the first vowel as initial vowels are pronounced in isolated words in English. Medial positions of /'/ were also mastered rather quickly. Final glottal stop was slightly more difficult. Particularly after a long vowel, some students seemed rather embarrassed to produce a /'/, as if it were not quite polite to make such a sound.

The problem with /'/ was not production, since students had been making glottal stops of one kind or another all their lives, but rather awareness of its status as a phoneme. Since

speakers of American English are accustomed to making a glottal stop as an allophonic feature of utterance-initial vowels, or word-initial vowels in precise speech, without being aware that they are producing such a sound, students simply did not notice the /'/. They omitted it where it was needed; they inserted it where it did not belong without realizing that they were making a glottal stop at all.

Incorrect substitutions made by students

/'/ for zero. This substitution occurred in medial post-consonantal prevocalic position. The situation is complicated by the fact that some Arabic words which in isolation are pronounced with initial glottal stop normally lose the /'/ when spoken in close transition with other words preceding, while other words with initial glottal stop retain the glottal stop even when preceded by other words in close transition. The most frequent case of the "dropped" /'/ is that of the definite article, as in the first of the following two examples. In both of these two contrasting pairs, students retained the /'/ in the second member of the pair.

/'ilhind /"India" contrasts with /safiir ilhind/ "the Indian Ambassador"

/'igtimaa9/ "meeting" contrasts with /'iligtimaa9/ "the meeting"

The retention of a glottal stop in a position where it is normally dropped out is not likely to confuse native speakers as to meaning intended.

Zero for /'/

This error occurred in medial postconsonontal prevocalic position, and also in intervocalic position, postvocalic preconsonantal position, and postvocalic final position. In these positions, omission of the glottal stop which the native speaker uses usually means omitting one of the three consonants which constitute the tri-consonantal root of most Arabic words. This could result in a confusion of meaning. For example, when a student pronounced /'il'uṣuul/ "the rule, usual thing", without the glottal stop, the informant heard it as /'ilwuṣuul/ "the arrival". In the following examples, /'/ was incorrectly omitted:

/mu'tamar/ "conference" /qur'aan/ "Koran"

/ha'ii'a/ "truth" /mulḥa'/ "attache"

/'a/ for /'/

A released /'/, in postconsonantal final position, or postvocalic preconsonantal or final position, was sometimes heard as /'a/, constituting an extra syllable: /dilwa'ti/ "now" /ṭari'teen/ "two ways" /far'/ "difference"

/y/ for /'/

This substitution occurred in the environment /i'a/, /i'i/, or /a'i/.

/ha'i:'a/ "truth" /sawwa'iin/ "drivers"

/b/

Description

Bilabial obstruent. Voiced stop or fricative in free variation intervocalically, the stop predominating. Voiced or voiceless stop before voiceless obstruents. Voiced stop elsewhere.

Difficulties in hearing and producing

Very few. An American English /b/ was usually acceptable to the informant. An exceptional case was the word /ba9d/ "after", in which the informant objected strongly to the "heavy" /b/ of the students. Since she also criticized their pronunciation of the entire word on the ground that it sounded emphatic, this /b/ difficulty can probably be explained as another example of how use of too backed an allophone of /a/ can cause neighboring consonants to be heard as emphatic. (See Chapter VII, "Emphasis".)

Incorrect substitutions made by students

No cases of incorrect substitution were observed.

/d/ and /ḍ/

Description

Voiced dental stop.

Difficulties in hearing and producing

Students at first produced an alveolar /d/. The informant did not consider this a serious problem, although occasionally she criticized this /d/ as too explosive. Students were able to produce a dental /d/ after its articulation had been explained, but had difficulty remembering to use this type of articulation.

The emphatic consonant /ḍ/ was usually rendered acceptable by use of the correct vowel allophones in its vicinity.

Incorrect substitutions made by students

/d/ for /ḍ/ (See Chapter VII for a discussion of difficulties with emphasis).

/maḍa/ "he signed" /biḍəʔtu/ "his goods"

/g/

Description

Voiced stop. Palatal before front vowels, velar before back vowels.

Difficulties in hearing and producing

None. American English /g/ was always satisfactory.

Incorrect substitutions made by students

None.

/f/

Description

Labiodental fricative. Voiced or voiceless before voiced obstruents, voiceless elsewhere.

Difficulties in hearing and producing

An American English /f/ was usually satisfactory. However, certain students with Southern backgrounds had a habit of producing what the informant called a "Texas /f/", which she refused to accept. This sound was apparently produced by establishing contact between the upper teeth and the lower lip at a point farther forward on the lip than was usual for the other students. The /f/ was then released with a "flip", i.e., an explosive quality, sometimes with a slight on-glide [ə] before the following vowel.

Incorrect substitutions made by students

None.

/s/ and /ṣ/

Description

Voiceless dental sibilant, of higher pitch than most allophones of English /s/. [9]

Difficulties in hearing and producing

Not much difficulty. The non-emphatic /s/ was satisfactorily rendered by use of the American phoneme /s/. A satisfactory emphatic /ṣ/ was produced in most cases by use of the correct vowel allophones in the vicinity of /ṣ/.

Incorrect substitutions made by students

/s/ for /ṣ/ (See Chapter VII for a discussion of difficulties with emphasis).

/biṣ ṣooda/ "with soda" /ṣeef/ "summer"

/š/ for /sy/ Students failed to distinguish between the second consonants of /misyit/ "she forgot" and /miśyit/ "she left". Note the lack of contrast in English, where "miss you" can be pronounced [mɪsˑyʊˆˑ] or [mɪšˑʒʊˆˑ].

/š/

Description

Palatal groove fricative. Voiced or voiceless before voiced obstruents, voiceless elsewhere. As the sh in English "shine" but higher pitched than most allophones of this English phoneme.

Difficulties in hearing and producing

None. An English /š/ was always satisfactory.

Incorrect substitutions made by students

None.

/x/

Description

Voiceless uvular continuant. Generally trilled but frequently a mild fricative.

Difficulties in hearing and producing

Of all the "exotic" back consonants (/x ɣ ħ ʕ q/), /x/ was mastered in the shortest time by most students. The informant agreed with this observation.

On first hearing /x/, the students looked blank. They recognized something new but were confused as to "what to do" to produce the sound. However, after four weeks of the intensive course almost all students were able to produce /x/ with relative ease.

Incorrect substitutions made by students

/k/ for /x/ A problem in the early days.

/taxliis/ "clearance" /'aaxir/ "last"

/'uxtu/ "his sister"

/ḥ/ or /h/ for/x/. /'axuuya/ "my brother" /'axbaar/ "news".

/ḥ/

Description

Voiceless pharyngeal fricative.

Difficulties in hearing and producing

Here is a case where one English phoneme, /h/, includes some allophones from each of <u>two</u> Egyptian phonemes, /ḥ/ and /h/. As might be expected, American students had considerable difficulty in discriminating between the two. This problem persisted for a long time.

Students were sometimes able to produce an acceptable /ḥ/ by greatly increasing the friction of their American laryngeal /h/, furnishing some sort of contrast with Egyptian /h/. But the informant did not seem really satisfied until students had attained a true pharyngeal fricative, presumably narrowing the pharynx by moving the root of the tongue back, and raising the larynx. Achieving this feat took several months for most. One student still had not mastered /ḥ/ after seven months of the course.

In general, /ḥ/ before and after /a/ was considerably easier to pronounce than /ḥ/ before or after /i/ or /u/, perhaps because when producing /ḥ/ the tongue is already more or less in position for a low central vowel.

Incorrect substitutions made by students

/h/ for /ḥ/ This substitution was by far the most common and the most persistent error made in connection with /ḥ/, especially in prevocalic and intervocalic position. Even after students were able to <u>produce</u> an acceptable /ḥ/ with pharyngeal friction, they had much difficulty in correctly <u>identifying</u> and repeating this phoneme in the speech of the informant, except when listening attentively to isolated words. Students also tended to <u>remember</u> /ḥ/ and /h/ as one phoneme rather than two, and to forget, when speaking from memory, which one to use in given vocabulary items.

/li ḥadd/ "until" /ḥees/ "since"

/naḥaas/ "copper" /ṣaḥiiḥ/ "true"

Zero or vowel length for /ḥ/. This error, frequent in the early days of the course, occurred in postvocalic position, either word-final or preconsonantal, where American /h/ never occurs. Students often substituted vowel length, particularly when the preceding vowel was short, as in the following words:

/wiḥša/ "bad" /ṣaḥbi/ "my friend"

/'imbaariḥ/ "yesterday" /ruḥt/ "I went"

/x/ for /ḥ/ Occurred occasionally in the early days of the course.

/yiruuḥ/ "he goes" /'aqtariḥ/ "I recommend"

/ḥa/ or /aḥ/ for /ḥ/. The tongue position of /ḥ/ and its auditory effect are somewhat similar to the position and auditory effect of a voiceless [ə] . This similarity caused confusion in a few cases: e.g., /malḥ/ "salt" was heard as /malḥa/. However, this problem is not at all comparable to the far greater problem students encountered in trying to discriminate between /9/ (the voiced counterpart of /ḥ/ and /9a/ or /æ9/. (See the section on /9/.) Presumably this greater ease of discrimination in the case of /ḥ/ is due to the fact that /ḥ/ is voiceless in contrast to the voicing of /a/, whereas /9/ is voiced.

A further example of this substitution is furnished by the writer's consistent hearing and pronouncing the proper name /muḥsin/ as /muaḥsin/, while living in Egypt.[10]

/h/

Description

Laryngeal breathing. The throat is more open and the amount of air expelled is generally greater than in English /h/. Voiced or voiceless intervocalically and before voiced obstruents, voiceless elsewhere.

Difficulties in hearing and producing

American English /h/ was usually satisfactory; a very few times it was criticized as "too heavy". Syllable-final /h/ was a difficulty at the very beginning but was soon mastered.

Incorrect substitutions made by students

/ḥ/ for /h/. This error occurred less frequently than the reverse error. However, students fairly frequently asked, "is it /h/ or /ḥ/? I can't tell." Several commented on their own difficulties with overcorrection: after struggling so long to master the production of /ḥ/, they tended for a time to use it exclusively for both /h/ and /ḥ/ - sometimes even in English!

/hawwa/ "air" /muttaham/ "suspect"

The informant sometimes heard /ḥ/ before /a/ when the student fully intended to pronounce /h/. The problem here was apparently that the student had used a low, central allophone of /a/, i.e.,[AE], like that used by Egyptians after /ḥ/, rather than the higher, more fronted vowel which normally follows /h/, i.e., [æ^] or [ɛ] . (See the section on /a/ in Chapter V.) /fiiha/ "in it."

Zero for /h/. This error occurred frequently in the early days, particularly in postvocalic position, either word-final or preconsonantal.

/ḍuhr/ "noon" /'ahlan w sahlan/ "welcome"

A few instances occurred when students omitted /h/ in intervocalic position. This error most often involved the feminine possessive or object suffix /ha/. A possible explanation might be a carry-over of the American habit of dropping the /h/ of "her" and "him" in unstressed position, as in "I can't see her." A further contributing factor may be the fact that post-stress intervocalic /h/ in Arabic is often quite weak phonetically, especially when preceded and followed by the same vowel. /biiha/ "in it, with it." /ti'uliiha/ "you (fem.) say it."

/h/ was occasionally omitted in prevocalic position after a consonant.

/mafhuum/ "understood" /'ulha/ "say it!"

Gemination for /h/. A vaciation of the above error was the mild difficulty some students found in distinguishing between consonant plus /h/, and geminated consonant, as in such a minimal pair as /fakka/ "change" contrasted with /fakka/ "fruit".

/z/ and /ẓ/

Voiced dental sibilant, of higher pitch than most allophones of English /z/. 11/

Difficulties in hearing and producing

Not much difficulty. An American /z/ was acceptable to the informant. A satisfactory emphatic /ẓ/ could usually be produced by use of the correct vowel allophones in the vicinity of /ẓ/.

Incorrect substitutions made by students

/z/ for /ẓ/ (See Chapter VII for a discussion of difficulties with emphasis.)

/muwaẓẓaf/ "employee" /laḥẓa/ "moment"

/ġ/

Description

Voiced uvular continuant, fricative or trill in free variation.

Difficulties in hearing and producing

/ġ/ was one of the most difficult sounds for the Americans to produce. Most students had far more difficulty producing this sound than its voiceless counterpart /x/. Early attempts were characterized by helplessness and confusion, and production of various growling and strangling sounds. According to the informant, students eventually achieved results by practicing gargling at home.[12]

Incorrect substitutions made by students

American /r/ for /ġ/. It may be that students actually "heard" the American semivowel /r/, which could be the case when /ġ/ was articulated with only slight friction rather than a trill. From another point of view, this response might be attributed to a previously acquired habit of reacting to any trilled sound (like Spanish /r/) or to a voiced uvular continuant (like some kinds of German /r/ and French /r/) as identical with American /r/, when listening to foreigners speaking English.

/tiġayyaṛha/ "you change it" /ballaġt/ "I forwarded"

/ġasiil/ "washing" /'aġlab/ "most"

Students sometimes inserted an American /r/ before pronouncing /ġ/.

Egyptian /r/ for /ġ/, The back trill of /ġ/ was sometimes mistaken for the front trill of Egyptian /r/.

/'iṛṣ(i) saaġ/ "piaster" /yiġanni/ "he sings"

However, words containing a cluster of these two consonants, such as /farɣa/ "empty" or /maɣrib/ "evening" were not heard with /rr/ or /ɣɣ/

/g/ for /ɣ/ This error was not frequent but deserves mention because of the consistency with which students pronounced the common word /šuɣl/ "work" as /šugl/.

Zero for /ɣ/ Another consistent error was in the common word

/ṣuɣayyaṛ/, where between /u/ and /a/ students heard /w/ or nothing.

/ʕ/

Description

Voiced pharyngeal fricative.

Difficulties in hearing and producing

This phoneme still presented some difficulty after six months of the intensive course. At the beginning of the course /ʕ/ provoked less excitement than some other phonemes, such as /ɣ/, because it was not so obviously a new sound; students heard a vowel, /'/, or nothing at all. However, this very elusiveness remained a problem for students, who continued to have difficulty recognizing and therefore producing /ʕ/ in the correct places.

The friction of this fricative was rarely perceptible to the students; /ʕ/ was most frequently heard as some sort of vowel, rather than a consonant.[13] Early in the course production of a recognizable and fairly acceptable prevocalic, intervocalic or postvocalic /ʕ/ was attained by producing a short vowel, lower and usually farther back than the neighboring vowels. The vowel quality heard by the students and reproduced varied somewhat with the neighboring vowels, but was always close to [ɐ] or [ə]. For example:

> Before or after non-emphatic /a/, /ʕ/ was usually heard with a quality of [Æ] , [ɐ] or [ə] , and near an emphatic /a/ was heard with a quality of [ɑ].
>
> Before or after /i/, /ʕ/ was usually heard with a quality of [ə], [æ], [Æ], or [ɐ].
>
> Before or after /u/, /ʕ/ was usually heard with a quality of [ɔ], [ə], or [ɐ].

Thus a phonetic transcriptionof the American pronunciations heard would be about as follows:

/baa9it/	[bæ:ăIt]	"she sold"
/šaari9/	[šæ:r^{i}Iă]	"street"
/'usbuu9/	['Usbu:ă]	"week"
/bu9d/	[boǰd]	"distance"

Students almost always executed this vowel change with a simultaneous and obvious drop in pitch at that point in the word where the /9/ occurred. The writer's first assumption was that they were imitating an actual pitch drop heard in the informant's speech, and that this pitch drop was helping to make their /9/ acceptable to the informant.[14] However, the informant began to notice this pitch drop and to complain about it. She pronounced a number of words for the writer in which the voice pitch seemed to remain level throughout the /9/. These words were also pronounced as questions in which the intonation was rising and there was no pitch drop audible to the writer. Said in isolation or in utterance-final position, words with final /9/ frequently contained a drop in pitch, but there was no clear evidence that this drop was greater than in words without /9/, pronounced in the same sentence environment.

The writer concluded that for Americans interested in comprehending and pronouncing Egyptian Arabic, the most significant part of the auditory impression created by the Egyptian /9/ was the impression of a low vowel, usually with a quality distinct from the vowel preceding or following it.[15] The degree of similarity between the physical movements involved in the articulation of /9/ by an Egyptian, and the movements of the speech apparatus of an American in executing the vowel transition described above, might prove an interesting subject for investigation. Presumably both involve lowering or backing of the tongue.

The comparatively much greater difficulty met by Americans in pronouncing /9/ in postconsonantal, word-final position could be accounted for by the fact that here there is no neighboring vowel, and hence the above-mentioned device of shifting vowels cannot be utilized. Students eventually achieved some mastery of final /C9/, and improved their pronunciation of /9/ in other environments, by introducing some sort of pharyngeal tension and friction into their pronunciation of /9/. However, even at this more advanced stage, discrimination and production of final /C9a/, /Ca9/ and /C9/ as three distinct sequences remained a problem. A part of the pronunciation difficulty in the case of /C9a/ seemed to be that students could not relax the throat muscles fast enough to change from /9/ to /a/.

Incorrect substitutions made by students

Zero for /9/. Occurred particularly in prevocalic position, both word-initial and after a consonant, before /a/. Note that

because of the similarity in auditory effect of /9/ and American /a/ [a], little or no contrast was heard between the Egyptian phoneme /9/ and a following Egyptian /a/ [Æ], while before /i/ and /u/ it was easier to hear some sort of contrast.

/9andi/. "with me" /9alee/ "on him"

/'il9arabi/ "the Arab" /ṭab9an/ "naturally"

Zero was substituted for /9/ in intervocalic position, postvocalic final position, and postconsonantal final position.

/'il'izaa9a/ "broadcasting" /'awḍaa9/ "conditions"

/man9/ "forbidding"

A low central or front vowel for /9/. Occurred in all positions.

Although the first acceptable American versions of /9/ have been described as "a low vowel", this pronunciation was not always considered satisfactory by the informant. Apparently the vowel "shift" to or from the neighboring (phonemic) vowel of the word was an essential part of an acceptable /9/. Particularly in the environments listed below, pronouncing simply a low central or front vowel was frequently unacceptable:

1) after the vowel /a/. In this case, addition of another [a] or [æ] which closely resembled the preceding vowel did not provide the "vowel shift" effect described above; the sequences were heard by the informant as simply a long /aa/.

/bita9ti/ "belonging to me" /yiṣna9/ "he manufactures"

2) in final position after a consonant. Words ending in this type of cluster are usually nouns of the pattern /CVC9/, which could constitute minimal pairs with another noun pattern, /CVCa/. For example, /ḍir9/ "armor" and /ḍira/ "shade".

3) in the environment /i9C/. Note that /i/ before /9/ is a very low allophone of /i/, usually [ɛ] or lower. The combination /i9/ in this environment was frequently heard and pronounced by students as /a/ or /aa/, with a quality of approximately [æ]. This mishearing was highlighted on one occasion when a student, hearing the form /bi9t/ "I sold" for the first time, asked why it had an /a/ in it, when the rule for verbs of this type called for either an /i/ or a /u/.

/ti9bu/ "they got tired" /yi9mil/ "he does"

4/ before /i/,/ii/ or /oo/. The combination of the [æ] or [a] quality of the /9/, plus the following high front vowel, frequently struck American ears as identical with the American diphthong in "fine" or "knife", as pronounced above the Mason-Dixon Line. Thus in the following words the syllable beginning

with /9/ was pronounced with this American diphthong and no other vowel; eventhe long /ii/ and /ee/ eluded the Americans completely.

/9eeš/ "bread" /'il9eela/ "the family"

/9iid/ "feast" /9ilba/ "box"

/9a/ for /9/. /a9/ for /9/. /9a for a9/. /a9 for 9a/.

After six months of an intensive course, distinguishing between these combinations in word-final position was still extremely difficult. In the sequences /9a/ and /a9/, students failed to hear the contrast between /9/, heard with a vowel quality of [Æ] or [a] , and a preceding or following /a/, which meant presumably that the only difference they could perceive between /9/ and /9a/ or /a9/ was a slight additional length in the latter two. Discriminating between final /Ca9/ and /C9a/ seemed next to impossible. In the following groups of words, all members of the group sounded alike to the students:

/badii9/, /badii9a/ (masculine and feminine proper names)

/gam9/, /gam9a/, /gama9/ (and sometimes /gaami9/)

"collecting", "university", "he collected", "mosque"

/saba9/, /sab9a/ (different forms of the word "seven")

/'/ for /9/ Occurred frequently in prevocalic position, both word-initial and after a consonant, before /a/ or /aa/:

/9aarif/ "knowing" /9askari/ "military"

/'a/ for /9/ Occurred occasionally in postvocalic position before a consonant:

/ti9bu/ "they got tired"

/h/ or /h/ for /9/. Occurred a few times. It may be that the informant devoiced the /9/, or that students were hearing the pharyngeal friction of /9/:

/mazra9a/ "farm" /9aleek/ "on you"

/y/ for /9/. Occurred occasionally when /9/ was preceded by /a/ and followed by /i/:

/sa9iida/ (a greeting) /ragga9it/ "she gave back"

/bita9itkum/ "belonging to you (pl.)"

/r/ and /ṛ/

Description

Apical trill. /r/ is voiceless prepause following voiceless obstruents, voiced elsewhere.

Difficulties in hearing and producing

At the beginning of the course production of /r/ seemed to be an "all or nothing" proposition. Some students were completely unable to trill an /r/; the others could do it with comparative ease. The latter group agreed that they had made the sound as children, e.g., when imitating airplanes, and had been able to do it as long as they could remember.

The students who had difficulty with /r/ began the course using an American /r/. In postvocalic position, particularly after front vowels, they included the centralized vowel offglide which precedes American /r/ in such an environment, e.g., in the words /biira/ "beer" and /xeer/ "well-being". In prepause position following a voiced obstruent, they used the American syllabic /r/ of "bigger" and "other", as in /fagr/ "dawn".

After six weeks of the course almost all students were able to produce some kind of short trill, or at least a flap /r/. /r/ seemed more difficult after long vowels, especially /ii/, than after short ones, perhaps because less breath was left to produce the trill. A double /rr/ as in /marṛa/ "time" remained a difficulty for some students for a very long period.

An acceptable emphatic /ṛ/ was produced by using the correct back allophone of /a/ in its vicinity.[16] For students who had mastered /r/, there was no problem with /ṛ/.

Incorrect substitutions made by students

/ir/ for /r/. Occurred occasionally in utterance-initial position. Students evidently heard voicing before the trill began:

/rigl/ "leg" /ṛaahit/ "she went"

/l/ and /ḷ/

Description

Dental lateral. Voiceless prepause following voiceless obstruents, voiced elsewhere. Often has nasal resonance.

Difficulties in hearing and producing

In the case of prevocalic /l/, an American prevocalic /l/ as in "lean" was usually satisfactory. Whether or not an American intervocalic /l/ could be used in intervocalic position in Egyptian words depended upon the dialect of the students. If their American intervocalic /l/ was strongly velarized it was unsatisfactory in intervocalic position in Egyptian words. In the case of postvocalic /l/, preconsonantal or final, an American English postvocalic /l/ was distinctly not satisfactory. All students at the beginning of the course pronounced postvocalic /l/ strongly velarized, as in the English words "hill" and "mail", with a distinct central off-glide at the end of the vowel.[17] Although the class was thoroughly coached on the difference between American /l/ in "dill" and Egyptian /l/ in /yidill/ "he guides", the American velarized postvocalic /l/ persisted for a long time. Although students understood the problem and the mechanics of producing the correct sound, their conscious awareness of it was not sharp enough to overcome their previous habits in a short period of time.

Eventually a few cases of overcorrection occurred, when students used a non-velarized /l/ in items which required an emphatic /l̤/, such as /wal̤l̤aahi/ "by God!"

The most difficult position for Americans to produce /l/ was prepause following a voiced obstruent. Here students tended to make /l/ not only velarized but also syllabic. For example, /rigl/ "leg" was pronounced like "wriggle". (See Chapter III on consonant clusters for further comments on clusters with /l/.)

Incorrect substitutions made by students

/l̤/ for /l/. Occurred in postvocalic position and in word-final post-consonantal position:

/ballagna/ "we forwarded" /bil 9arabi/ "in Arabic"

/su'aal/ "question" /rigl/ "leg"

/m/

Description

Labiodental before /f/, bilabial elsewhere. Voiceless or minimally voiced prepause following voiceless obstruents, voiced elsewhere.

Difficulties in hearing and producing

An American English /m/ was usually satisfactory. The exception to this statement was when /m/ occurred prepause following a voiced obstruent. Here students tended to make /m/ syllabic, as in the English words "rhythm" and "atheism"; e.g., /9aḍm/ "bones".

Incorrect substitutions made by students

Zero for /m/. The only difficulty occurred when /m/ was voiceless, in prepause position following a voiceless obstruent. Students sometimes failed to hear /m/ at all in this environment:

/fahm/ understanding" /'ism/ "police station"

/n/

Description

Non-labial nasal. Dental before vowels or when final. Before consonants, variable in place of articulation according to the articulation of the consonant. Voiceless or minimally voiced prepause following voiceless obstruents, voiced elsewhere.

Difficulties in hearing and producing

An American English /n/ was usually satisfactory, despite its alveolar articulation. /n/ was a problem only when it occurred prepause following a voiced (or sometimes voiceless) obstruent. Here students tended to make /n/ syllabic, as in "sudden" and "dozen"; e.g., /ḥuzn/ "sadness" and /'ibn/ "son".

Incorrect substitutions made by students

Zero for /n/. Occurred when /n/ was voiceless, in prepause position following a voiceless obstruent. Students sometimes failed to hear /n/ at all in this environment:

/baṭn/ "stomach"

On one occasion almost all students failed to hear a final /n/ after a voiced consonant:

/sign/ "jail"

/w/

Description

High back rounded semivowel.

Difficulties in hearing and producing

In prevocalic position, either word-initial or after a consonant, an American /w/ was always satisfactory.

In intervocalic position the following sequences occur: /iw /, /iiw /, /uwV/, /awV/, and /aawV/. Americans produced the first three of these sequences without difficulty, but had considerable difficulty with /awV/ and /aawV/. The problem was primarily one of incorrect syllable division. The first syllable of a word such as /sawa/ "together" was at the beginning of the course pronounced by students with the vowel nucleus of English "shower" or "coward"; e.g., with a diphthong [æɤ]or [aɤ] . The first syllable of the Egyptian pronunciation of /sawa/, on the other hand, clearly ends with the simple vowel [ae]; the /w/ is a part of the second syllable. Similarly, students pronounced /'awi/ "very" to rhyme with "zowie". Students were helped considerably by instructions to keep the two syllables of /sawa/ clearly distinct, ending the first one after [sæ].

In postvocalic position the possibilities when /w/ is followed by a consonant are /uww/ (no other second consonant after /uw/), /awC/ and /iwC/). The only possible prepausal sequence of /Vw/ is /aw/. The first of these sequences, /uww/, presented no particular difficulty. The combinations /awC/ as in /dawsa/ "noise" and /'awlaad/ "children", and /aw/ as in /gaww/[18]/ "weather", presented a problem slightly different from that of /aw/ in intervocalic position. In these words Egyptian /w/ was a part of the same syllable as the preceding /a/; realization of the sequence /aw/ as a diphthong was acceptable to the informant. The problem with these words was really a vowel difficulty. When the American diphthong /aU/ was utilized by students, the first element, i.e., [ae] , was distinctly longer than the corresponding first element in the Egyptian sequence /aw/. Secondly, the American off-glide [ɤ] was lower and less rounded than the Egyptian off-glide [ɯ].

The sequence remaining to be considered, /iwC/ (a fairly rare combination), proved less of a problem than might be expected. In the words /yiwṣalu/ "they arrive" and /ḥatiwṣal/ "you will arrive", the sequence /iw/ was heard and reproduced as an American /o/, as in "yo-yo". This rendering was accepted by

the informant; it was the students who were a little surprised later when they looked at the phonemic spelling. Presumably this phenomenon was due at least partly to the fact that in many American dialects, especially in the eastern and southern parts of the United States, the vowel /o/ begins with a front or central on-glide, in addition to its off-glide [ʊ̯].

One other small problem arose from an unfamiliar type of morpho phonemic change involving the word for "and", which may take the shape /wi/, /wa/, /wu/, and sometimes /w/ or /u/, depending upon its phonemic environment. Having learned this vocabulary item first as /wi/, students were most unwilling to truncate it to the extent the informant desired in such an expression as /tamanya w talatiin/ "thirty-eight", where "and" is phonetically something like [u], or /w/ with a very short, vague vowel after it.

Incorrect substitutions made by students

There was no real confusion with other Egyptian sounds in hearing and reproducing. Students certainly did not always hear in terms of the Egyptian phonemic system; e.g., they evidently heard /w/ as part of a vowel in some cases, but their reproduction of it was satisfactory as far as the informant was concerned, once the above problems of production were solved.

There were a few indications that the contrast of /wu/ and /u/ might prove to be a problem. For example, /'ilwusuul/ "the arrival" was heard by an American as /'iluuul/. However, not enough examples of this type of sequence occurred to justify listing the contrast of /wu/ and /u/ as a problem.

/y/

Description

High front unrounded semivowel.

Difficulties in hearing and producing

In prevocalic position, either word-initial or after a consonant, an American /y/ was satisfactory.

In intervocalic position the sequences which can occur are /ayV/ (prestress only), /aayV/, /iyV/ (prestress only), /uyV/ (prestress only) and /uuyV/. The difficulties encountered by Americans here are in part parallel to those described for /w/ in intervocalic position. The students had no difficulty with /y/ after /i/ or /u/, but found /y/ after /a/ and /aa/ a sizable problem. Students misplaced the syllable boundary,

which in a sequence /ayV/ or /aayV/ should come before the /y/, not after; for the simple vowel [æ] or [æ:] they substituted a diphthong. A further error was that the diphthong they used was their American diphthong /aI/, which begins in most dialects with the vowel [ä], lower and farther back than the non-emphatic Egyptian /a/ or /aa/. Thus in /kubbaaya/ "(drinking) glass", students pronounced the last two syllables like "buy a". Likewise /saayif/ "seeing" was rendered as "shy if". Students improved when they were instructed to produce a vowel [æ] or [æ:], which retained the same quality throughout, and to delay the /y/ until the beginning of the following syllable.

In postvocalic position the possibilities when /y/ is followed by a consonant are /ayC/, /iyC/ (only prestress, except for the sequence /iyy/), and /uyC/. Possible prepausal sequences are /ay/ and /aay/. All of these sequences present some difficulty.

In the case of prepause /ayC/ and /ay/, the /y/ can be rendered as a vowel, the falling part of a diphthong. However, the diphthong itself presented Americans with two familiar vowels in an unfamiliar combination. Except in the neighborhood of emphatic consonants, the first part of the Egyptian diphthong /ay/ is heard as [æ], rather than the [a] used by most Americans north of the Mason-Dixon Line. Students who began by pronouncing the word /'aywa/ "yes" like "Iowa" minus the middle vowel, and /šaay/ "tea" as "shy", had to learn to substitute the new diphthong [æ$^{i}_{\sim}$] for their habitual [a$^{I}_{\sim}$] or [a$^{e}_{\sim}$].

The sequence /iyC/ occurs most commonly as /iyy/ as in /hiyya/ "she" and /waṭaniyya/ "nationalism". The environment /yy/, when /i/ is stressed (as in these two words), calls for a low allophone of Egyptian /i/: "free variation from somewhat lower than [I] to a lax [e]".[19] Students had little trouble with this vowel plus /yy/ after they ignored the spelling and pronounced these words as they heard them: /hiyya/ with the first syllable like "hay" in English, and /waṭaniyya/ with the third syllable like "nay".

The sequence /iyC/ also occurs occasionally, prestress, in one other type of word: for the word which appeared in the text as /biyisallimu/ "they greet", the informant insisted on the pronunciation /biysallimu/.[20] Students incorrectly heard and repeated the first syllable of /biysallimu/ as [bi:] or [bI$^{i}_{\sim}$]. The pronunciations finally accepted by the informant were [bey] with a consonant [y], or [bE$^{i}_{\sim}$].

Since only two Egyptian words containing the sequence /uyC/ are known to the writer, and neither of the Egyptian informants consulted could think of any further examples, this sequence will not be discussed.

Incorrect substitutions made by students

/ii/ for/iy/. This error occurred when /iy/ was unstressed and followed by another consonant. (See above .)

/biysallimu/ "they greet" /biy'uulu/ "they say"

/i/ for /yi/. In the environment /Cyi/, /y/ was sometimes omitted by students. This mishearing was apparently not very important; the informant did not object to repetitions without the /y/.

/tagyiir/ "change" /'allaah yisallimak/ "God give you peace!"

/s/ for /sy/ (See the discussion of /s/, page 12.)

CHAPTER III

CONSONANT CLUSTERS

Description

In Egyptian Arabic, clusters of two consonants can occur in medial or final position in the word. No initial clusters occur. [21]. No clusters of more than two consonants occur.[22]

Medial clusters may consist of two identical consonants, traditionally referred to as "geminates", or of two different consonants. In final position, clusters consist of two different consonants; final geminates do not occur.[23] There are two other limitations on the distribution of consonants in clusters. One of these is the absence of certain types of clusters with /y/ or /w/. (See the sections on /y/ and /w/ in the preceding chapter.) The other is the rarity or absence of clusters containing two consonants (not geminates) which have the same point of articulation, or certain neighboring points of articulation.[24]

Difficulties in hearing and producing

In the following discussion, consonants will be grouped into the following contrasting types: voiced or voiceless; obstruent or resonant. Attention is given chiefly to difficulties arising from combinations foreign to American English structure of two of these types of consonants. It can be assumed that single consonants which give students difficulty will also give trouble in clusters. Therefore, only problems

which are a specific function of clustering per se will be discussed in this section. A cluster such as /rk/, which is difficult only because the Egyptian trilled /r/ is difficult for Americans in any position, will not be discussed.

Clusters of two identical consonants, i.e., geminates, will be treated separately in a following section.

Contrast in voice

In Egyptian phonology any combination of voiced and voiceless consonants is possible in either medial or final position, subject to the above-mentioned limitations on occurrence of consonants in clusters. In normal as opposed to precise speech, however, this contrast of voice is frequently neutralized, especially in word-final position. In English, clusters containing a contrast in voice are in a sense more limited, in that certain types do not occur even theoretically.

In medial position in English, combinations of a resonant and a voiceless stop or fricative occur fairly freely, as in "Africa", "butler", "artist", et al. Combinations of voiced and voiceless obstruents also occur occasionally, particularly in compound words such as "godfather", where it is possible to postulate some kind of juncture between the two consonants. (Note that in both of the types of American English clusters so far mentioned, the factor of medial position in the word permits assigning the first consonant of the cluster to one syllable and the second consonant to the next syllable.) In view of the occurrence of a contrast of voice in a medial cluster in English, a contrast in voice in a medial cluster in Egyptian Arabic was not expected to present much difficulty to speakers of American English. This assumption proved correct.

In word-final position in English, a contrast of voice is found in combinations of resonant plus voiceless obstruent, as in "heart", "wealth", but the reverse order, i.e., voiceless obstruent plus resonant, does not occur. It was anticipated, therefore, that students would have no particular difficulty with clusters of the type "resonant plus voiceless obstruent" in Egyptian Arabic, but would find the reverse combination of voiceless obstruent plus resonant a problem. As expected, students had difficulty with the latter type, as in words such as /faṣl/ "class" and /'ism/ "name". However, this type of cluster is one of those in which the contrast in voice is usually neutralized by Egyptians in speaking at normal speed; i.e., the resonant is usually voiceless or minimally voiced. Production of the entire cluster as voiceless was always acceptable to the informant, and hence the contrast in voice was not a problem.

Final clusters of two obstruents with a contrast in voice are almost non-existent in English, except for marginal pronunciations. The only cluster of voiced plus voiceless obstruent known to this writer is the combination /dθ/ found in "width" and a few other vocabulary items. Combinations of voiceless plus voiced obstruent do not occur. As might be expected, American students were not easily able to produce final clusters of voiced obstruent plus voiceless obstruent in Egyptian Arabic, and had even more difficulty with the reverse combination of voiceless obstruent plus voiced obstruent. However, as in the case of final resonants in the preceding paragraph, in both of these two types of clusters the contrast in voice is usually neutralized. I.e., in clusters of voiced plus voiceless obstruent, the first consonant is usually devoiced, making the entire cluster voiceless. Similarly, in most clusters of voiceless plus voiced obstruent the first of the two consonants becomes voiced, making the entire cluster voiced. Exceptions to this last statement are clusters in which the final consonant is /9/, which proved outstandingly difficult. These clusters are discussed below. Further exceptions are certain clusters in which the first consonant is /h/ or /'/; however, these clusters seemed fairly easy for the students, particularly clusters with /'/, as in /9u'd/ "necklace".

Unfamiliar combinations of consonant types

In Egyptian Arabic clusters, both medial and final, stops, fricatives and resonants can combine freely, except for the limitations mentioned at the beginning of this chapter. Thus these three categories of consonants permit nine types of clusters. Each of these types is listed below, with a brief statement on the distribution of this type of cluster in American English, disregarding the factor of voice, which has been discussed above.

Type of Cluster in Egyptian Arabic	Medial Occurrence in English	Final Occurrence in English
Stop plus stop	Occurs frequently	Only /Ct/ and /Cd/[25]
Stop plus fricative	Occurs frequently	Only /Cθ/ /Cs/ /Cz/
Fricative plus stop	Occurs frequently	Only /Ct/ /Cd/ /sp/ /sk/
Fricative plus fricative	Occurs occasionally	Only /Cθ/ /Cs/ /Cz/
Stop plus resonant	Occurs frequently	Does not occur
Resonant plus stop	Occurs frequently	Occurs frequently
Fricative plus resonant	Occurs frequently	Does not occur
Resonant plus fricative	Occurs frequently	Occurs frequently
Resonant plus resonant	Occurs frequently	Only /lm/ /rm/ /ln/ /rn/ /rl/

Study of the above table would lead one to anticipate difficulties for Americans with clusters of obstruent plus resonant, in final position (types 5 and 7), and possibly some difficulty with final clusters consisting of stop plus stop, stop plus fricative, fricative plus stop, fricative plus fricative, and resonant (types 1, 2, 3, 4, and 9). No particular difficulties would be anticipated in medial clusters, except as a function of certain individual consonants.

It should be noted at the outset of this account of students' difficulties that problems of final clusters were usually alleviated by the presence of a final epenthetic vowel, which permitted assigning the second consonant to another (brief) syllable.[26] Thus the final clusters dicsussed below were "problems" only when the words were spoken in isolation or in sentence-final position.

Final clusters of obstruent plus resonant presented considerable difficulty to the Americans. Students generally made the final resonant syllabic, as in the English words "bigger", "wriggle", "rhythm" and "sudden". Of the four resonants in question[27], clusters of /Cn/ and /Cm/ were somewhat more difficult than /Cl/ and Cr/ (once students had mastered the trilled /r/ and the non-velar /l/). Evidently a flap or trill was easier in this position than a nasal. The difficulty in avoiding syllabicity was most pronounced when the obstruent preceding the resonant was voiced:

/fagr/ "dawn" /rigl/ "leg" /'ibn/ "son"

/9ad̩m/ "bones"

When the obstruent preceding the resonant was voiceless, the informant generally devoiced the resonant also. Students were soon able to imitate this devoicing, which helped them to avoid syllabicity in the resonant. A minor problem was that students sometimes failed to hear the devoiced resonant at all, particularly in the case of /m/ and /n/, where no trill or flap noise was present. In the following words, students at first failed to hear the final, devoiced consonant:

/bat̥n/ "stomach /'is̥m/ "name"

Final clusters of stop plus stop presented no particular difficulty, even when the combination of consonants was unfamiliar, as in a word like /kidb/ "falsehood". An exception to this statement was clusters in which the final consonant was /'/. These clusters presented a little difficulty at the beginning of the course, as in /far'/"difference".

Final combinations of stop plus fricative were not difficult, with the important exception of clusters ending in /x/, /ɣ/, /9/ or /ħ/. Clusters ending in these four consonants will be discussed below. Unfamiliar combinations of fricative plus stop were usually mastered without difficulty, as were combinations of fricative plus fricative. The following words, illustrating clusters of these three types, were easily pronounced by Americans:

/makatabṡ/ "he didn't write" /ħizb/ "(political) party"

/kaṡf/ "list"

In the case of final resonant plus resonant, students had some difficulty at first with three combinations which do not occur in English: /mr ml mn/. The problem was one of avoiding extra syllabicity, as in the case of obstruent plus resonant:

/min ḍimn/ "from among" /ħaml/ "pregnancy"

/'amṛ/ "matter"

Difficulties not accounted for by non-English combinations of consonant types

All final clusters containing /ɣ/ or /9/ as the second consonant presented difficulty at first, due at least in part to the difficulties encountered with these two consonants in any environment. The same was true to a lesser extent when the second consonant was /x/ or /ħ/. However, an additional problem seemed to arise with the combinations /tɣ/ and /dx/, in both medial and final position, and to some extent with /tx/, /nɣ/ and ṡɣ/, even when any contrast in voice was neutralized. In such words as /matɣayyaṛitṡ/ "she didn't change" and /tudxul/ "you enter", the combination of a dental stop plus a uvular fricative presented extraordinary difficulty. Students did better when they made a point of releasing the dental stop before initiating the fricative; in fact it seemed almost a physical impossibility to pronounce these combinations without such a release.

Final /C9/ should be mentioned as a persistently difficult combination. For comments on this difficulty, see /9/ in Chapter II.

CHAPTER IV

GEMINATION

Clusters of two identical consonants, traditionally known as gemination, occur frequently in Egyptian Arabic. This phenomenon is not a new one for speakers of English, since "gemination" occurs across word boundaries in English, as in most pronunciations of "got to", "guess so", and "grab bag", and occasionally within words containing more than one morpheme, as in "thinness" and "cattail". Nevertheless, in the early stages of learning Arabic, students frequently fail to give full value to both consonants.

In the case of isolated words, the problem may well be largely one of spelling. English speakers, accustomed to ignoring double letters in English spelling, as in words such as "funny" and "stopping", tend to pronounce only one medial consonant in such an Egyptian Arabic word such as /fattiš/ "he inspected", and to make the vowel preceding the geminate consonants too long. Students might well become more aware of geminate consonants in Arabic if the two letters were written with a hyphen between them, or some other indication that the consonants are separate and assigned to different syllables.

Problems of gemination encountered by the students in the course observed were closely linked to their patterns of stress and rhythm. Students tended to pronounce Egyptian Arabic with the stress-timed rhythm of American English. I.e., they used a heavy stress on most of the syllables in the sentence which had word-stress, particularly on those syllables containing a long vowel or ending with geminate consonants, and tended to weaken the stress of the other syllables. In these weak-stressed syllables the Americans shortened the vowel and obscured its quality. Among other things, this tendency played havoc with gemination occurring directly before a stressed syllable. Such a sentence as /kabbeet izzeet/ was pronounced with exactly the rhythm of its English translation: "I spilled the oil", with weak stress on the first and third syllables, and no gemination whatsoever. Numerous other difficulties of the same type were encountered. Students had to increase the stress on their weak-stressed vowel in order to follow it with gemination. The following cases of gemination are some which presented difficulty to students:

/ballagna/ "we forwarded" /makunnaaš/ "we weren't"
/'irriggaala/ "the men" (Most students could manage the long vowel and <u>one</u> of the occurrences of gemination, but not both.)

/miš šibbaak/ "from the window". (Most students were able to produce /šš/ if they used sufficient stress on the preceding vowel. But they pronounced the second /i/ very short and weak, and failed to produce a geminate /bb/.)

In longer sequences, containing several pairs of geminate consonants or including long vowels, the problem increased proportionately. Although the three occurrences of gemination in such a sequence as /'ana saddeet issikka/ "I blocked the road" are paralleled by such an English sequence as "Mary cut two thick cattails," English utterances with so few weak stresses are fairly uncommon. Most students needed considerable practice before they could repeat the Arabic sentence smoothly, including all the gemination. Here again, the device of separating the geminates by some sign would possibly be helpful.

After students had become somewhat familiar with gemination and the "jerky" effect produced by several instances of it in a short sequence, the Arabic of some of them suffered for a period from excessive gemination. Consonants in words and phrases where no gemination should occur were geminated. This error could probably be described as occuring "by analogy". The general impression of the writer was that students sometimes "brace themselves" for whatever might come in the way of gemination, keeping the muscles of the articulators tense throughout the utterance. In the following examples, underlined consonants were erroneously geminated:

/hi<u>n</u>a/ "here" /'a<u>n</u>a/ "I"

/rakki<u>b</u>u/ "put him aboard!"

/rameetu/ "you (pl.) threw it"

The error of substituting gemination for vowel length, described in Chapter VI, could be considered another aspect of this same problem. The whole question of how gemination, length and stress in the rhythm of Egyptian Arabic interact with the native language rhythm patterns of American students is far too complex to receive detailed treatment in this paper, and remains an interesting subject for future research.

CHAPTER V

VOWELS

The vowel phonemes of American English [28]

/i/	"eat"	/æ/	"man"	/U/	"good"	/aU/	"now"
/I/	"it"	/ə/	"but"	/o/	"no"	/ɔI/	"boy"
/e/	"late"	/a/	"not"	/ɔ/	"saw"		
/E/	"let"	/u/	"do"	/aI/	"I"		

The vowel phonemes of Egyptian Arabic [29]

Long vowels	Short vowels
/ii/	/i/
/aa/	/a/
/uu/	/u/
/ee/	
/oo/	

Description

Unrounded high front vowel

Allophones

Allophones of /i/ are short and lax. All allophones tend to be lower if the following syllable contains the phoneme /a/.

[e] occurs before /ħ/ or /ʕ/, sometimes before/rC/. A slightly higher allophone occurs after /ħ/ or /ʕ/.

[ɛ] occurs before /ʕC/. Sometimes a still lower allophone occurs in this environment.

[Iˤ] occurs before or after /q/ or emphatic consonants.

[Iˤ] occurs elsewhere. Before two consonants, lower allophones also occur (as low as [e]) in free variation with [Iˤ]

Allophones of /ii/ are long and tense. /ii/ occurs only under stress.

[ɨ:] occurs before and after /q/ and emphatic consonants. It is less centralized before /q/ than after, sometimes including an off-glide to a lower position, in free variation.

[i:] elsewhere.

After /ħ/, all allophones of /ii/ begin with a lower position and glide immediately into normal position. Before /ħ/ or /ʕ/, the vowel may include an off-glide to a lower position, in free variation.

Difficulties in hearing and producing

Relative length - see Chapter VI.

Vowel quality

[i:]. The high tense vowel [i:], considerably higher than the American phoneme /i/ in "eat", was generally too low and too lax in the pronunciation of the Americans.

/kitiir/ "much" /ba'šiiš/ "tip"

The informant sometimes complained that the students from the South "changed the vowel in the middle;" i.e., began with a lower or more central vowel and glided to [iᵛ].

[ɨ:]. This allophone, while appearing exotic to Americans at first glance, seemed to result almost automatically from attempts to pronounce [i:] after /q/. Greater difficulty was encountered when [ɨ:] occurred in the neighborhood of emphatic consonants. (See Chapter VII for a discussion of difficulties with emphasis.)

[Iᵛ]. This allophone was occasionally pronounced too centrally, but in most cases the vowel used by the students in the English word "sit" was acceptable to the informant. The amount of free variation in this vowel was rather bewildering to Americans, who sometimes heard the vowel of "sit" and sometimes the vowel of "set" within the same word. But they had little difficulty in imitating to the satisfaction of the informant. [30]

[e]. The only difficulty with this allophone resulted mainly from the fact that in the phonemic spelling only one symbol was used for all allophones of /i/. Students could imitate the vowel [e] of /ħilwa/ '"sweet" without difficulty, but some were led by the spelling to use [I], to which the informant objected. [31]

/ir/. Before Egyptian /r/ the students tended to use the vowels they were accustomed to using before American /r/, including the centralized off-glide. Thus a word like /giri/ "he ran" might be pronounced with the vowel of "chair" or the vowel of "cheer" both of which are too long, in addition to the off-glide. /i/ in the environment /irC/, a lower allophone, was pronounced with either the vowel of "chair" or the vowel of "shirt". (The latter pronunciation may have been partly influenced by the spelling /ir/, which in English spelling usually represents the phonemic sequence /ər/.)

/išširka/ "the company" /giryu/ "they ran"

These difficulties were eliminated after students had mastered the pronunciation of Egyptian /r/.

/il/. Students who had not yet mastered the non-velarized /l/ of Egyptian Arabic included a centralized off-glide before /l/, as in the English name "Bill".

/iir/, /iil/. In both of these cases students included a centralized off-glide before /r/ or /l/:

/mudiir/ "director" /mustahiil/ "impossible"

/iyC/. In the case of the sequence /iyy/, students had no particular problems once they ignored the spelling, since the American phoneme /e/ was accepted in this position. But /iy/ plus any other consonant presented difficulties in hearing and production. (See the discussion under /y/ in Chapter II for details of this difficulty.)

Unstressed /i/. Students tended to pronounce unstressed /i/ as [ə] , regardless of which allophone was expected in that position. This mispronunciation was particularly noticeable before /r/, /l/, /m/ and /n/, in which cases the vowel almost completely disappeared and the consonant was made syllabic. In the following words, the underlined vowels were pronounced [ə]. (/i/ in final position was never pronounced [ə].)

/kitiir/ "much" /laakin/ "but"

/maṣaakil/ "problems" /niftikir/ "we think"

It must be pointed out, however, that the informant seemed less particular about the quality of unstressed /i/ than of unstressed /a/. The writer observed that the informant herself sometimes used centralized allophones of /i/ in unstressed position, not only when there was an emphatic consonant or /q/ in the vicinity, but in such an expression as /fig gumruk/ "in the customs house", which contains no emphatic consonant.

The explanation in this particular example may be one of vowel harmony. A further explanation seems to be the free variation between unstressed /i/ and /u/ in prestress syllables when an immediately following stressed syllable has the vowel /u/ or /uu/, as in /hiduum/ "clothes", in which the first vowel was variously pronounced by the informant as [U˖] , [u˖] , [I] and [ɨ] .[32]

Incorrect substitutions made by students

/a/ for/i9/. Note that the allophone of /i/ occurring before /9/ is [ɛ] or lower: the lowest of all the allophones of /i/. See the section on /9/ in Chapter II for comments on the similar auditory effect of /9/ and a low central or front vowel.

/bi9t/ "I sold" /biyi9mil/ "he makes"

/a/ for /9i/ /9iltu/ "his family" /9ilba/ "box"

/a/ and /aa/

Description

Low front, central or back unrounded vowel.

Allophones

Allophones of /a/ are all short and lax.

[ɑ] , a low back vowel, considerably farther back than most pronunciations of the a in English "father", occurs before or after /q/ or the emphatic consonants.

[Æ] ,[33] is a low front vowel, somewhat more frontal than the a of English "father" for most speakers. Close to certain Southern pronunciations of "I". Occurs before or after /9/ or /h/.

[ɛ] or [æ] in free variation,[34] with the higher allophone more common except before /w/ and /y/. Occurs in all environments other than those listed above.

/aa/ occurs only under stress. All allophones are long and tense.

[ɑ:] As described for /a/, but longer.

[æ:] is a low front vowel, close to the American vowel in "cat"; sometimes higher or lower. Occurs before or after /9/ or /h/.

[ɛ:] or [æ] [35] occurs elsewhere. The higher allophone is more frequent.

Difficulties in hearing and producing

Length

See Chapter VI for a discussion of vowel length.

Vowel quality

At the very beginning of the course several students pronounced all occurrences of /a/ or /aa/ as [a] . This problem may have been a result of the fact that only one symbol was used in the text, or a carry-over from some other foreign language study, or even a reflection of a preconceived notion to the effect that in foreign languages the letter "a" is always pronounced "ah".

[ɛ] and [ɛ:] . This vowel quality, lower than that in English "pet" and higher thanin English "pat", took some time to achieve, particularly the long vowel. Students generally used the vowel of "pat". The informant sometimes accepted this; at other times she insisted on something higher. After being corrected, some students switched to the diphthong [eʔ] of "yeah". This pronunciation was also unsatisfactory because of the off-glide to a more central position.

/talatiin/ "thirty" /nilaa'i/ "we find"

/kaanit/ "she was" /šibbaak/ "window"

/ay/. See the section on /y/ in Chapter II for comments.

/aw/. See the section on /w/ in Chapter II for comments.

/arC/. Speakers of American English are unaccustomed to the sequence of [a] followed by American /rC/. Students expected [a]rather than [æ] before Egyptian /rC/, and used [a] even in imitating the informant.

/targimna/ "we translate" /dars/ "lesson"

/gardal/ "bucket"

/al/. [ɛ(:)] or [æ(:)] before /l/ was frequently rendered with too high an allophone of /a/, as well as an off-glide to a central vowel before /l/, as in the American name "Al".

/hilaal/ "crescent" /balad/ "country"

[Æ]. This allophone is lower and farther back than the vowel in English "cat", but farther forward than the first vowel of "father". At the beginning of the course students used the vowel of "father". The informant strongly objected to backed versions of this vowel, on the ground that this pronunciation caused her to hear the consonants as emphatic:

/ba9deen/ "afterwards" /mahmuud/ (proper name)

/hadd/ "boundary"

[æ:]. The allophone [æ:] , as in /haamil/ "carrying" and /9aaši'/ "in love", was satisfactorily rendered by using the vowel of "bad" in most dialects of American English. In these words students had problems of /h/, /9/ and vowel length, but not vowel quality.

[ɑ] and [ɑ:]. This allophone, although not heard in the normal speech of the students, did not present any problems. Students learned to imitate it rather rapidly, perhaps as a result of having imitated British or other varieties of English in earlier days. Frequently the informant accepted a sound more fronted than her own allophone, which might be written [a] . For a short /a/ next to an emphatic she sometimes accepted [ʌ] as in English "mud"; e.g., /'itfaḍḍal/ (a courteous invitation to any activity). Student pronunciations using a rounded vowel [ɔ] were not acceptable to the informant, but sometimes occurred, as in /ṭaari'/ (proper name) and /'amṛ/ "matter".

Unstressed /a/. Students tended to pronounce unstressed /a/ as [ə], regardless of which allophone was expected in that position. This habit was an obvious carry-over from American pronunciation habits, e.g., the quality of the unstressed vowels in the words "alert", "viable" and "Nevada". In the following words, the underlined vowels were pronounced approximately as [ə].

/mabaani/ "buildings" /gamal/ "camel"

/'inta/ "you"

/waṭani/ (mispronounced to rhyme with "botany") "nationalist"

Incorrect substitutions made by students

/i/ for /a/. Occurred occasionally in unstressed syllables. Note that in American English discrimination between /æ/ and /I/ in unstressed syllables is not normally required, since

the quality of all unstressed vowels is usually [ə] or [ɨ]. In the following examples the underlined vowel was pronounced [I].

/muttah̲am/ "suspect" /yirk̲ab/ "he rides"

/u/ and /uu/

Description

Rounded high back vowel.

Allophones

Allophones of /u/ are short.

[o], a lax vowel, occurs:

1) after /ħ/.

2) in /úCC/ environment before or after /ħ/, /9/, or labials, and before /x/ or /g/.

3) whenever the following syllable contains /a/.

[u], a tense vowel, occurs only in post-stress, word-final position.

[Uˇ], a lax vowel, occurs elsewhere. In the /uCC/ environment, allophones range from [Uˇ] to [o] in free variation.

Allophones of /uu/ are long and tense. /uu/ occurs only under stress.

[uˇ:] occurs before or after /q/ or emphatic consonants. Sometimes includes an off-glide to a lower position before the following consonant.

[u:] occurs elsewhere. May be slightly fronted, in free variation.

Note: before /ħ/ or /9/, there may be an off-glide from any allophone of /uu/ to a lower position. After /ħ/ there may be a glide from a lower position up to whatever allophone of /uu/ is required.

Difficulties in hearing and producing

Length - See Chapter VI on vowel length.

Vowel quality

[o]. This vowel is a new sound for most American speakers, being lower than the vowel of "put" and distinct from the

vowel of "boat" because of its shortness and its lack of off-glide. Students generally erred in the direction of one or the other of these two American vowels; i.e., they substituted either [U] or [ʌᵛ] for [o] , as in the following words:

/mulha'/ "attache" /ruht/ "I went"

Sometimes the allophone [o] was pronounced [u] by students, but such errors were generally attributable to the use of only one symbol for all allophones of /u/, or to unfamiliarity with morphological changes, 36/ rather than mishearing. In the following words, /u/ was pronounced [u] by students:

/bukṛa/ "tomorrow" /mulha'/ "attache"

[u]. [u] , which occurs in final position, was a problem for students. The Americans were unaccustomed to using a short high back vowel in word-final position (American /U/ does not occur in final position), and resorted either to American /u/ as in "do" or American /o/ as in "no". In either case the resulting vowel was too long and was objectionable because of its off-glide; some students included a centralized on-glide in the vowel as well. Students achieved a fairly acceptable vowel by shortening their American vowel considerably. In the following words, students pronounced the final vowel with American /o/ or /u/.

/šarahu/ "they explained" /bita9tu/ "belonging to him"

/sammu/ "they named"

[Uᵛ]. This allophone was frequently rendered satisfactory by using the American phoneme /U/ as in "good", but the latter vowel was sometimes criticized as too high, as in the following examples:

/kufta/ "meat balls" /kunt/ "I was"

/9andukun/ "with you (pl.)"

[u:]. This vowel, considerably higher than the American /u/ in "boot", was generally too low and too lax in the pronunciation of the American students. In the case of certain students from the Southern part of the United States, the American diphthong /u/ was particularly unacceptable because the syllabic first part of it was a semi-rounded central vowel rather than a back vowel. This pronunciation may be transcribed as approximately ; or a more fronted off-glide might be more accurate.

/suu'/ "market" /mafhuum/ "understood"

[uˇ:]. Although students had no particular difficulty with this vowel before or after /q/, they had great difficulty in differentiating between the [uˇ:] used in the vicinity of emphatic consonants and the [u:] used in the vicinity of non-emphatic consonants except /q/. (See Chapter VII on Emphasis for comments on this difficulty, and examples).

/uur/ and /uul/. Both of these sequences were mispronounced with off-glides to a more central position before the consonant. This difficulty persisted until students had mastered the Egyptian trilled /r/ and non-velarized final /l/.

/biyizuur/ "he visits" /biyi'uul/ "he says"

Unstressed /u/. Students pronounced unstressed /u/ as [ə] on a few occasions, as in the following examples:

/yaakul/ "he eats" /maśguliin/ "busy (pl.)"

In some cases pronouncing unstressed /u/ as [ə], or as a vowel even farther front, seemed to be acceptable to the informant. The informant herself used a vowel which sounded to the writer like [ə] on some occasions and at other times like [ɨ] or [ɛ] , in the first syllable of the words /muḥammad/ (a proper name) and /ḍuyuuf/ "guests". The explanation of this alternation seems to be the free variation of unstressed /i/ and unstressed /u/ in certain environments, a phenomenon already noted in the discussion of the vowel /i/.

Incorrect substitutions made by students

No cases of incorrect substitution were observed.

/ee/

Description

Unrounded mid front vowel. Always long and tense.

Allophones

[e:] , slightly centralized, occurs before or after /q/ or emphatics. Before /q/ there may or may not be a non-syllabic off-glide to a lower position.

[e:] occurs elsewhere.

Note: before /9/ or /ḥ/ there may or may not be a non-syllabic off-glide to a lower position from whatever allophone of /ee/ precedes.

Difficulties in hearing and producing

Length - See Chapter VI on vowel length.

Vowel quality - At the beginning of the course students tended to use their American /e/ as in "late". Compared with the Egyptian vowel, the American /e/ is too low and lax at the beginning: [ɛ]; unlike the Egyptian vowel it rises to an off-glide at the end: [ɪ̯], which is higher than the Egyptian vowel. The informant was sharply aware of this change in the quality of the vowel, and objected to it:

/9aleeha/ "on her" /lee/ (mispronounced "lay") "why?"

/feen/ "where?"

Students from Texas and other parts of the South had particular difficulty in producing a sufficiently high vowel. Just as in their American English pronunciations of "day", "main", etc., they tended to begin the vowel of /feen/ with a particularly low allophone, and to end with an off-glide [ɪ̯].

Until students had mastered the non-velar /l/, they made a final /l/ velar and included an off-glide to a more central position in the vowel /ee/ preceding /l/.

/9eela/ "family"

Incorrect substitutions made by students

/ii/ for /ee/. At the very beginning of the course, students persistently heard /ee/ as /ii/. e.g., in the word /9aleek/ "on you" the last syllable was heard and reproduced as "leak". Interestingly enough, the informant much preferred the pronunciation "lake", even with a lower vowel and a high off-glide (see above), to the pronunciation "leak". Yet her /9aleek/ sounded so high to the Americans that it was only after she told them that it should be like the word "lake" that they were able to produce an acceptable pronunciation (i.e., with the more acceptable of the two American phonemes, which still differed in quality from the Egyptian vowel).

/oo/

Description

Rounded mid-back vowel. Always long and tense.

Allophones

[o:] occurred before /ḥ/, /q/, /9/ and emphatic consonants, with or without a non-syllabic off-glide to a lower position.

[o:] or slightly higher or lower allophones around [o:] in free variation. Occurred elsewhere.

Difficulties in hearing and producing

Length - See Chapter VI on vowel length.

Vocal quality - At the beginning of the course students substituted their American phoneme /o/ as in "no" for the Egyptian vowel /oo/. The American diphthong was too low at the beginning and included an off-glide to [ʊ̯]. Some students, particularly those from the South, had a centralized vowel at the beginning of their American /o/.

/ool/ Until students mastered the non-velarized postvocalic /l/ of Egyptian Arabic, they pronounced the Arabic vowel /oo/ with an off-glide to a more central position before /l/.

Incorrect substitutions made by students

No cases of incorrect substitution were observed.

Epenthetic Vowels

In Egyptian Arabic a sequence of three consonants without an intervening vowel or pause does not occur except marginally. Where such a sequence would be expected, as for example when the word /kunt/ "I was" is followed by /hina/ "here, a short, "epenthetic" vowel occurs after the two consonants and before the juncture: /kunt(i) hina/. There are three of these vowels, all very short, identical in vowel quality with the allophones of /a/, /i/ and /u/ previously discussed. The most common of these epenthetic vowels is /(i)/.

Difficulties in hearing and producing

In general the students had little difficulty with epenthetic vowels. Perhaps because of their shortness, or the amount of free variation acceptable, the informant rarely objected to the vowel quality of these vowels.

Unquestionably the fact that the epenthetic vowels were written in the text, in parentheses, was of great assistance to the students. Since clusters of three consonants are normal in American English, it would have required tremendous effort on the part of the students to recognize and to remember when to use epenthetic vowels, if they had not been written. The writing of the epenthetic vowel is particularly useful in those words which end in a single consonant when said in

isolation, but double the final consonant and add an epenthetic vowel when non-final in the sentence. For example:

/biyiḥibb(i) baladu/ "he loves his country"

Another case where a written indication of the epenthetic vowel is most important is before a glottal stop, where the beginning student is inclined to ignore the glottal stop and elide the word with the previous word:

/kull(i) 'as'ilithum/ "all their questions"

One minor disadvantage of writing the epenthetic vowels was that students sometimes made these vowels too long. However, as the class became more familiar with the rhythm of Egyptian Arabic, this difficulty disappeared.

Elision of Vowels

In the Egyptian Arabic phrase /miši:tu imbaariḥ/"you (pl). went yesterday", the first vowel of the second word drops out in normal speech. This "dropping" of vowels occurs normally in the case of the definite article (/il/ before some words and /i/ plus a consonant identical with the initial consonant of the following word elsewhere). Similar "dropping" occurs with initial /i/ in some other environments. In some cases a shortening or elision of the final vowel and the following initial vowel occurs, giving an auditory impression of only slightly more than one vowel or one syllable. This elision occurs across both of the word boundaries in the following phrase: /hiyya illi itġayyaṛit/ "she is the one who has changed".

Difficulties in hearing and producing

Americans were frequently reluctant to elide or drop vowels in the manner described above. The difficulty was probably chiefly one of too great trust in the printed symbol, rather than of mere mishearing. Another source of this reluctance of students may have been the relative lack of elision of this type in English, where final simple vowels are fairly rare and where initial vowels are not ordinarily dropped.

CHAPTER VI

VOWEL LENGTH

In Egyptian Arabic vowel length is phonemic; in American English vowel length is not a phonemic distinction.

After the above statement, two further remarks are immediately in order. First, vowel length in Arabic is a problem for American students. Second, it is not nearly as great a problem as might be expected from the opening statement above. Americans studying Egyptian Arabic are fortunate in two ways. First, they have within their own native phonemic system a series of vowel phonemes which in vowel <u>quality</u> closely parallel the Egyptian pattern of vowel allophones. Secondly the distribution of the non-distinctive feature of <u>length</u> among the various American vowels is also parallel to the Egyptian pattern, up to a certain point. I.e., in most cases in which an Egyptian vowel is similar to an American vowel in quality, it also happens to be similar in length. The following table illustrates these parallels in vowel quality and vowel length:

<u>Egyptian Vowel Phonemes</u>			<u>Phonetically Similar American Vowel Phonemes</u>		
<u>Vowel</u>	Most frequent <u>allophone</u>	<u>Length</u>	<u>Vowel</u>	<u>Quality</u>[37]	<u>Length</u>[38]
/i/	[I˅]	Short	/I/	[I]	Fairly short
/ii/	[i:]	Long	/i/	[I^ɪ]	Fairly long
/u/	[U˅]	Short	/U/	[U]	Fairly short
/uu/	[u:]	Long	/u/	[U^ʊ]	Fairly long
/oo/	[o:]	Long	/o/	[ʌᵚ]	Fairly long
/ee/	[e:]	Long	/e/	[Eɪ]	Fairly long
/a/	[æ^]	Short	-	-	-
/aa/	[ae^:]	Long	/æ/	[æ]	Fairly long

A study of the above table reveals that the American English vowels having a phonetic quality similar to the Arabic <u>short</u> vowels are also normally rather short. The English vowels having a quality similar to the Egyptian <u>long</u> vowels are normally comparatively rather long. The break in this pattern of

similarity comes with the Egyptian vowels /a/ and /aa/. Here both the long and the short Egyptian vowel have approximately the same vowel quality, while in English the one vowel with a similar phonetic quality is normally long.

It is well known, of course, that the length of American English vowels is by no means totally a feature inherent in the vowel. Vowel length varies with sentence stress, and with the following consonant; i.e., vowels are normally longer before voiced consonants than before voiceless consonants, etc.

Difficulties in hearing and producing

Vowel length was really not a problem of articulation. Students were able to sustain long vowels for the required length of time after careful listening and imitation, using minimal pairs differentiated by vowel length alone (i.e., one word containing /a/ and the other /aa/). In practicing such pairs as /maalik/-/malik/,/9aalam/-/9alam/, and /šaafu/-/šafu/, students spontaneously and easily set up a rhythm in which the long vowels received a whole beat while the short vowels received only half a beat:

'	'	'	'	'	'	'	'	
maa	lik	malik	#	maa	lik	malik	#	etc.

While physical production of correct vowel length was not difficult, students had to cope with a problem of awareness and memory. Students frequently failed to notice and to reproduce vowel length when it was not called to their conscious attention. Similarly, short vowels were sometimes pronounced too long, through lack of attention to the factor of length.

Insufficient length

Long vowels generally had to be prolonged somewhat more than the longest vowels in English, although sometimes American vowel length seemed to be sufficient, as in /gawaab/ "letter". The writer was curious to discover whether the habit of greater vowel length before voiced consonants in American English might be carried over into Arabic. In this case, students would pronounce too short a vowel before a voiceless consonant more often than they did before a voiced consonant. A count of the instances recorded in which the informant objected to insufficient length reveals a slightly higher number of errors before voiceless consonants, but there is not enough difference to justify a statement on this point.

Another question which remains unanswered is whether the fact that long /aa/ and short /a/ generally have the same vowel

quality actually resulted in more frequent confusion between /a/ and /aa/ than between the pair /i/ and /ii/ or /u/ and /uu/. More than twice as many instances of insufficient length were observed for the vowel /aa/ than for either /ii/ or /uu/. However, the absence of statistics on the relative frequency of these three vowels in Egyptian Arabic leaves the question of frequency of errors still in doubt.

In the following examples, the long vowel was pronounced too short by students:

/laakin/ "but" /'innahaas/ "copper" /kitiir/ "many"

One further factor which probably added to students' difficulties with vowel length in Arabic was the difference between the stress patterns of Egyptian Arabic and American English. American English has strong primary stresses; vowels under primary stress tend to be longer than when they occur elsewhere. Egyptian Arabic, on the other hand, has a weaker word stress than that which American students are accustomed to in English. Furthermore, in Egyptian Arabic stress can occur on the first syllable of any word, in free variation with the position in which it occurs otherwise.[39] Thus instances occurred in which a word with a long vowel in the second syllable was pronounced by the informant with greater stress on the first syllable than on the second, or with what sounded to the writer like almost equal stress on both syllables. In such cases Americans were likely to stress the first syllable with their normal strong stress, making the vowel too long, and to pronounce the second syllable with too short a vowel:

/ta'šiira/ "visa" /kaddaab/ "liar"

Insufficient shortness

This problem occurred primarily with /a/, although it was also observed in the case of /i/ and /u/, especially in final position. The fact that the informant described the American vowel in the name "Al" as closer in length to her /aa/ in /'aal/ "he said" than to her /a/ in /'all/ "he became small", led the writer to anticipate that Americans would have considerable difficulty making /a/ sufficiently short in Arabic. In actuality, however, students were corrected far more often for failure to make /aa/ sufficiently long than for failure to make /a/ short. There were numerous occasions on which the writer heard students pronounce Egyptian /a/ distinctly longer than the /a/ of the informant, but these student pronunciations were seldom corrected.

In the following words the underlined vowel was criticized by the informant as too long. Note that all the underlined vowels are stressed vowels:

/t̲aksi/ "taxi" /ʂ̲agaṛ̲/ "tree" /d̲i̲faf/"(river) banks"

Contrasts between the stress systems of American English and Egyptian Arabic played a considerable part in the problem of insufficient shortness. English speakers are accustomed to stressed syllables which may contain any one of the fourteen American vowel phonemes listed at the beginning of Chapter V, some of which are fairly long, and to unstressed syllables which contain a short vowel, usually either [ə] or [ɨ]. In an Egyptian word such as /gamal/ "camel", students first reacted to the lack of stress in the second syllable, correctly making the second vowel short and incorrectly changing the vowel quality to [ə]. When they were instructed that they should make a clear [æ^] in the second syllable, they complied, but carried over their native-language habit of also making the vowel stressed and long. A similar difficulty occurred in the final syllable of /sitta/ "six" and /di'ii'a/ "minute", in which production of a clear [æ] resulted in too long a vowel.[40]

Substitution of gemination for length

Students frequently substituted gemination of the consonant following a long vowel for vowel length. This tendency was particularly noticeable when an authentic example of gemination occurred immediately preceding the syllable in question. (See Chapter IV for comments on the retention of tension in the articulators after gemination.) This error suggests that students may have been reacting to total word length, rather than to vowel length as such. On the other hand, this latter theory would not explain why no examples of the opposite error, i.e., substitution of length for gemination, were observed. In the following examples, students pronounced the long vowel as short, and geminated the vowel following it:

/kubbaaya/ "(drinking) glass" /'amriika/ "America"

/'iššihaada/ "the letter of recommendation"

CHAPTER VII

EMPHASIS

The consonants /ṭ ḍ ṣ ẓ ṛ ḷ/ have been referred to in preceding sections as emphatic consonants.[41] This terminology, although both traditional and convenient, may be misleading, since it suggests a quality pertaining to the consonants alone. "Emphasis is essentially a long component . . . Given an emphatic consonant, the neighboring vowels are almost invariably emphatic." [42] Thus in a word such as /ṭuub/ "stone" or /ṣiin/ "China" the phenomenon of emphasis, described below, affects the entire word. In a longer word the domain of emphasis may be confined only to the syllable containing the emphatic consonant, as in /ṣa9iid/ "Upper Egypt", or it may extend over the whole word, as in /ḥamiiḍ/ "acid". Prepositions in close transition with a following word containing an emphatic consonant may be affected, such as the preposition /fi/ in the phrases /fi'a'ṛab furṣa/ "at the earliest opportunity" and /fi maṣr/ "in Egypt". Similarly an epenthetic vowel preceding a word beginning with an emphatic syllable will have an emphatic quality, as in the phrase /wa't(i) ṭayyib/ "a good time".

The acoustic correlates of emphasis may be described as follows: "A lowering in pitch of the noise spectrum of obstruents, a lowering of the second formant for vowels, and a general lowering of the spectrum of the resonants." [43] Articulatory correlates are lip protrusion and/or pharyngeal striction, the upper surface of the tongue is in a lower position than for the corresponding non-emphatic allophones, and is somewhat concave. "The high front vowels are centralized, the high back vowels are lowered, and the low vowels are backed," [44] a system which results in allophones very similar to those before and after /q/. The two Egyptian informants concurred with the writer's general impression of greater "forcefulness" in emphatic as opposed to non-emphatic articulation, especially in the case of the emphatic stops, /ṭ/ and /ḍ/. [45]

Difficulties in hearing and producing

For Americans the key to acceptable repetition of Egyptian utterances containing emphatic consonants lies primarily in painstaking imitation of the neighboring vowel allophones. Observation of the intensive course in Egyptian Arabic bore out the conclusion that "the usual allophonic range of English

consonants in conjunction with various vowel phonemes crosses the phoneme boundary between the Arabic emphatic and non-emphatic consonants," and therefore "it is a heroic achievement for most English speakers to hear the emphatic and non-emphatic consonants as such." 46/ However, emphatic vowel allophones are in most cases fairly distinct from the non-emphatic to American ears; thus students after some practice can differentiate their pronunciation of vowels sufficiently to signal emphasis or its absence, to the Egyptian hearer. To what extent students, in consciously differentiating between articulation of two different vowels, are thereby succeeding unawares in differentiating their pronunciation of the neighboring consonants, is a question outside the scope of this paper.

The degree of difficulty encountered by Americans in discriminating between emphatic and non-emphatic segments, both in hearing and in imitating, depends largely upon which of the vowel phonemes is involved. By far the easiest distinctions to master are those depending upon the vowels /a/ and /aa/. Discriminations depending upon the quality of /i/, /ii/, or /ee/ were less easy. Those involving /oo/, /u/ or /uu/ presented the most difficulty of all. In the remainder of this chapter, problems involving each vowel are separately discussed. The minimal pairs (contrasting emphatic and non-emphatic segments) which follow the treatment of each vowel are some of those the writer used in working with the informants and with Americans, outside of the class sessions.

/a/ and /aa/. The contrast between emphatic and non-emphatic allophones of Arabic /a/ and /aa/ is sufficiently similar to the phonemic contrast in English between the vowels of "cot" and "cat" (or even "bet" and "bought"47/) to be immediately obvious to Americans. Aside from problems in reading or in repeating from memory, problems which were probably due to the use of the same printed letter for both allophones, students had very little difficulty in pronouncing segments containing the vowel /a/ or /aa/ as distinctly emphatic or non-emphatic. The one environment in which students confused emphatic with non-emphatic /a/ was before or after /h/ or /9/. One persistently troublesome contrast, until students had become very familiar with allophones of /a/, was the pair /ba9d/ "after" and /ba9ḍ/ "some". The first of these words, because of the presence of /9/, has a lower, more backed allophone of /a/ than do most non-emphatic words; i.e., [Æ] or [ɐ˕] rather than the more frequent [æ^] or [ɛ]. Students frequently heard the vowel of /ba9d/ as identical with the emphatic vowel [ɑ] or [ɑ˕] of /ba9ḍ/. That is, both vowels were heard as the [a] of most pronunciations of American English "father".

Occasionally /a/ (not /aa/) next to an emphatic consonant was heard and repeated as the vowel of "but". The informant sometimes accepted this type of pronunciation, but on other occasions objected to it. Evidently, since Egyptian Arabic contains no other lowback unrounded vowel besides the emphatic /a/, this American lower-mid back unrounded vowel was heard by the informant as very close to her own vowel. In the following examples the pertinent vowels are underlined:

/min fa̲ḍlak/ "please" /'inḍa̲mmeena/ "we joined"

/ġala̲ṭ/ "incorrect"

/ii/ The vowel phoneme /ii/ when emphatic could be identified by its somewhat lower quality and more particularly by its off-glide to a more central position, regardless of whether the emphatic consonant preceded or followed it. When the emphatic consonant preceded the vowel, an on-glide of some sort could sometimes be heard. The factor of greater "forcefulness" of articulation was sometimes helpful, although this statement was more true in the case of practice with minimal pairs, where students could note the contrast, than in isolated words or words in context.

Producing an emphatic /ii/ was less easy than identifying it. Best results were obtained by careful imitation of the centralized vowel, including its glides. Another useful device used by students was lip protusion, which tended automatically to lower the vowel and produce a glide in it. Occasionally the informant objected to exaggeration of these glides, particularly when they were pronounced at the beginning rather than the end of the vowel. A retroflex tongue position could also produce identifiable emphasis, although the sound produced by the other methods was preferred.

The following contrasts presented some difficulty to Americans:

/siin/ (letter of the Arabic alphabet) and /ṣiin/ "China"

/diib/ "wolf" and /ḍiib/ (place name)

/tiin/ "figs" and /ṭiin/ "mud"

/ee/ Students differentiated emphatic from non-emphatic /ee/, both in hearing and producing, by approximately the same factors which helped them in the case of /ii/. An emphatic /ee/ has a lower and more central quality than the non-emphatic /ee/, and a still lower on-glide and off-glide. Success in producing emphatic /ee/ was best achieved by one or a combination of the following devices: careful imitation of the vowel and its glides, lip protrusion, and greater "forcefulness" of

articulation. These devices were utilized by Americans in distinguishing the following pairs:

/seef/ "sword" and /ṣeef/ "summer"

/i/ The emphatic vowel /i/ was identified by its lowered and centralized quality. Students heard and reproduced [ɨ], [ə], and in a few cases even [ö] , without protest from the informant:

/tifl/ "dregs" and /ṭifl/ "child"

/tinha/ "her figs" and /ṭinha/ "her mud"

/oo/ In the case of /oo/ the only features assisting Americans to distinguish between emphatic and non-emphatic segments seemed to be the slightly lower vowel and the more forceful articulation in the emphatic member of minimal pairs. Students could hear at times a certain "something" in the emphatic vowel, which they could not name, but which this writer assumes to be pharyngeal resonance. Students had difficulty in differentiating emphatic from non-emphatic /oo/ in their pronunciation, but achieved some success by using a lower allophone combined with greater loudness and lip protrusion:

/sooda/ "black" and /ṣooḍa/ "soda"

/u/ The vowel /u/ in emphatic segments was distinguished by the same factors as those which distinguished /oo/. The emphatic vowel was slightly lower; the entire segment was louder and was characterized by what presumably was pharyngeal resonance. Students attained fairly acceptable pronunciations, after some practice, with a slightly lowered vowel, lip protrusion, and loudness:

/tubna/ "we repented" and /ṭubna/ "our stone"

/uu/ Distinguishing between emphatic and non-emphatic segments containing /uu/ was extremely difficult for Americans. Very little difference in vowel height could be discerned. Whatever success the Americans achieved in pronunciation was managed through some of the devices previously described, particularly loudness, lip protrusion and general tenseness of the tongue and throat, which may have produced some pharyngeal resonance. The writer also noted that in the case of the emphatic stop /ṭ/ before /uu/, an attempt to articulate the stop as a /d/ produced fairly acceptable results.[28]

/tuub/ "repent!" and /ṭuub/ "stone"

CHAPTER VIII

A CONCLUDING STATEMENT

In the preceding chapters the difficulties of Americans in mastering the phonology of Egyptian Arabic have been analysed, phoneme by phoneme. To the linguist examining the data which has thus been collected, the discovery that Americans encounter more difficulty with some Egyptian phonemes than with others comes as no surprise. Variations in the nature of the difficulties presented by the various phonemes, however, are worthy of further consideration.

Most American errors in hearing and pronouncing Egyptian Arabic can be assigned to five major types of difficulty, listed below. Certain Egyptian phonemes occasioned one particular type of error more often than any other. On the other hand, in many cases more than one type of error occurred in the various attempts to pronounce one particular phoneme. An outstanding example of this diversity of errors is the case of the phoneme /g/, which furnished examples of all of the following types of errors.

Major types of errors encountered by students

In type 1), an Egyptian phoneme is heard as something exotic, which the American cannot identify with any English phoneme. This error occurred particularly with /g/ and /x/ at the beginning of the course. Pronunciation of such an "exotic" phoneme may be very difficult at first, as in the case of /g/, involving learning a new set of motor skills. But once these skills have been acquired and thoroughly practiced, the "exotic" phoneme is easily identifiable in utterances, and is pronounced correctly both in careful imitation and in rapid speech in which the speaker's attention is focused on expression of an idea rather than on pronunciation.

In type 2), an Egyptian phoneme is overlooked, i.e., not heard and not pronounced, because it is "heard" as part of a neighboring phoneme. Examples of this type of error were occasioned by the phonemes /h/, /'/, and /9/, which were often heard as part of a preceding vowel when they occurred in post-vocalic position. In such cases, overcoming problems of correct hearing and of articulation took about the same length of time.

In type 3), two or more Arabic phonemes are identified by the American with one English phoneme, and thus heard and pronounced as "the same". Americans encountered this type of difficulty with Egyptian /h/ and /ḥ/, both of which were heard as American /h/. A second example is the case of long /aa/ and short /a/, both of which were heard as the vowel of "cat" (or "cot" if emphatic). In these cases correct hearing was a more serious and more persistent problem than motor control, although the latter might also be a stumbling block. In the case of /h/ and /ḥ/, for example, students who had reached the point where they could regularly differentiate their pronunciation of these two phonemes to the satisfaction of an informant, continued to have difficulty in identifying which of the two they were hearing in the speech of the informant. They tended to hear /h/ and /ḥ/ as one phoneme, unless they were exercising great concentration . [49]

Speaking correctly from memory also required alertness and concentration to avoid pronouncing /ḥ/ as American (or Egyptian) /h/. "Reversion" to the use of the phonetically similar American phoneme was likely to occur when the student's attention was focused on semantic content rather than on pronunciation.

In type 4), one Arabic phoneme is heard by Americans as identical with one English phoneme, but the differences between the English and the Arabic phoneme in point of articulation or mode of articulation are sufficiently great to cause the American pronunciation to be either incomprehensible or very foreign-sounding to the Egyptian. Examples of this problem are Egyptian postvelaric final /l/, Egyptian /r/ in all positions, and Egyptian /t/. These phonemes differed considerably as to the degree of difficulty their articulation presented. None of them occasioned any particular confusion in correct identification of the phoneme heard. In the case of all three of these phonemes, "reversion" to the use of the phonetically similar American phoneme was a long-lasting problem.

In type 5), the allophones of one Egyptian phoneme are consistently heard by Americans as belonging to two or more different American phonemes. The American hearing of the various allophones of Egyptian /a/ illustrates this type of error. Although Americans may continue indefinitely to hear in terms of two phonemes rather than one, this type of error is unlikely to interfere seriously with communication.

"Phonemic thinking"

The above analysis of types of errors encountered by American students may throw some light on a question raised in Chapter I: is correct hearing in terms of the phonemic system of the target language necessary for communication in that language?

A study of the above types of errors suggests a simple answer: if students overdifferentiate in their hearing of the target language, hearing different allophones of one phoneme as two or more different phonemes, as in type 5), little harm is done. But if students underdifferentiate, hearing two or more phonemes in the target language as one and the same, as in type 3), or hearing a sequence of the two phonemes as one, as in type 2), confusion is sure to result.

In helping students to avoid under-differentiation in their hearing, an essential tool is the phonemic alphabet. Such an alphabet naturally tends to eliminate overdifferentiation as well. Interestingly enough, a question arose during the course in Egyptian Arabic as to whether elimination of overdifferentiation in phonemic hearing (and thinking) is desirable. This case concerned the Egyptian vowel phonemes, some of which include allophones of widely different vowel quality, from an American point of view. It was evident at times during the course that the use of one symbol for all allophones of /a/, and the writing of /u/ and /i/ twice to indicate /uu/ and /ii/, tended to create difficulties for the students. Depending on their ears alone, students could imitate the vowel of /i/ as clearly distinct from /ii/ in quality as well as in length. But the use of the same symbol (although written twice in the one case) led them to pronounce both vowels with the same quality.

Experimenting with the use of different symbols for different allophones of one Egyptian vowel might result in improved performance by the learner. From a practical, pedagogical point of view, surely having students imitate different allophones of a vowel correctly, under the impression that these allophones are separate phonemes, is preferable to having students pronounce all the allophones alike simply because they are assigned to the same phoneme.

FOOTNOTES

1/ For a description of the status and use of "colloquial" versus "classical" Arabic in Egypt, see the chapter "Ethnic Groups and Languages" in the HRAF handbook Egypt (New Haven: Human Relations Area Files, 1957).

2/ Students attended four hours of class per day, five days a week, usually with the informant but occasionally with the linguist who supervised the course. They were required to listen to tapes for three additional hours per day.

3/ George L. Trager (ed.), Materials for Phonetic Instruction (Washington: Foreign Service Institute, 1952).

4/ In his Phonology Richard S. Harrell concludes his analysis of emphasis in Egyptian Arabic by stating his preference for use of the term "prosodic feature" to describe emphasis, rather than the terms "emphatic consonant phoneme" and "emphatic vowel phoneme". However, for convenience of reference in this paper, particularly in view of the fact that the phonemic spelling system indicates emphatic consonants, the term "emphatic consonant" will be used. See Richard S. Harrell, The Phonology of Colloquial Egyptian Arabic (New York: American Council of Learned Societies, 1957), Chapter VIII.

5/ The classification of American English consonant phonemes is that found in H. A. Gleason, Jr., An Introduction to Descriptive Linguistics (New York: Holt, 1955), p. 24, except that different synonyms have been used for some of the points of articulation.

6/ The classification of Egyptian Arabic consonant phonemes is taken from Harrell, Phonology, p. 25.

7/ This description and all subsequent descriptions of consonants in Chapter II are direct quotes from Harrell, Phonology pp. 25-27.

8/ Harrell, Phonology, p. 28.

9/ The emphatic /ṣ/ has a lower pitch than non-emphatic /s/. Certain lower pitched allophones of English /s/ strike Egyptian ears as /ṣ/.

10/ Note that high vowels have an off-glide before /h/ in slower speech. (See Chapter V on vowels.)

11/ The emphatic /ẓ/ has a lower pitch than non-emphatic /z/. Certain lower pitched allophones of English /z/ strike Egyptian ears as /ẓ/.

12/ Kenneth L. Pike, in his Phonemics (Ann Arbor: University of Michigan Press, 1947), p. 38, recommends gargling as a method for learning the uvular trill, "possibly encouraged with a bit of water."

13/ The transliterations of Arabic used in most English language newspapers and signs in Egypt indicate that various generations of English speakers have heard /9/ as a vowel. For example, the words /badii9/ (a proper name) and /šaari9/ "street" are often spelled "Badia" and "sharia". Evidently the British officials of former days also heard /9/ as a vowel.

14/ This assumption was fortified by the following statement of Gairdner: "In passing to /9/ from a preceding vowel the voice has to descend rapidly, often through more than an octave, and is cut off at its lowest pitch. If a vowel follows, the pitch begins at its lowest and rises quickly, through a similar inverval, to normal vowel pitch. When /9/ is final and preceded by another consonant . . . a hardly audible grunt is all that is produced, being merely a momentary touch below the lowest note the voice is capable of producing." W. H. T. Gairdner, Phonetics of Arabic (London: Oxford University Press, 1925) p. 28.

15/ The proposition that it is the English speaker's vowel change rather than pitch drop which signals /9/ to the Egyptian is supported by the point that Egyptian vowels do not ordinarily include any on-glides or off-glides, i.e., changes in quality, except adjacent to the emphatic consonants and /9/, /ḥ/ and /q/. Thus insertion of a low vowel, different in quality from the vowels already present in the word, could be heard as an additional phoneme; whereas a pitch drop, which is frequently heard in the last syllable of a word in utterance-final position even when no /9/ is present, seems less likely to perform such a function.

One possible explanation for the drop in pitch usually accompanying an American version of /9/ might be the fact that the most similar transitions from one vowel to another in American speech are found as off-glides at the end of utterances ending in 2-3-1 intonation, such as "Yeah", "Here comes Bob", and "Too bad".

16/ Almost all occurrences of /ɣ̣/ are with low vowels.

17/ There was some likelihood of confusion of meaning here. Although Egyptian emphatic /l̩/ is extremely rare in words lacking a primary emphatic (i.e., /ṭ ḍ ṣ ẓ/), it is frequently found in words which do contain a primary emphatic. Hence the use of a velarized /l/, likely to be identified by Egyptians as their pharyngealized /l̩/, could cause Egyptians to hear a neighboring non-emphatic /t/, /d/, /s/, or /z/ as emphatic. For example, /dalaal/ "coquetry" with velarized /l/'s could be heard as /ḍalaal/ "backsliding", since emphasis is usually a feature of the whole word. See Harrell, Phonology, pp. 69-82, for a detailed discussion of emphasis.

18/ Note that in the textbook for the course, final consonants which become double when a suffix is added to the words in which they occur are written as double consonants.

19/ Harrell, Phonology, p. 53.

20/ This pronunciation is in accord with the statement of Harrell that "the /iyi/ of the citation form of a given utterance, when unstressed before a single consonant, is usually pronounced /iy/ at ordinary conversational speed of speech." Phonology, p. 57.

21/ Although some of the examples quoted from the textbook used in the course under discussion are spelled with two initial consonants, e.g., /kwayyis/, such words actually contain a voiceless syllable pulse between the two consonants, which is phonemically a vowel. For a further explanation, see Harrell, Phonology, p. 56.

22/ See Chapter V for a discussion of epenthetic vowels, which prevent the occurrence of three-consonant clusters across minor juncture.

23/ See Harrell, Phonology, pp. 30-31, for an exposition of this somewhat controversial point of view. Note that the spelling of some of the examples cited from the textbook with two identical final consonants, e.g., /issitt/, was intended as a pedagogical aid to avoid certain problems in juncture and morphological alternation, and not as a completely phonemic transcription.

24/ See Joseph H. Greenberg, "The Patterning of Root Morphemes in Semitic", Word, Vol. VI (August, 1950), pp. 162-181, for a discussion of this interesting and intricate patterning of consonants in Semitic roots.

25/ The statements on distribution of English consonants in clusters are based mainly on A. P. Malick, "A Comparative Study of American English and Iraqi Arabic Consonant Clusters", Language Learning, Vol. VII (No. 3 and 4, 1956-1957), pp. 65-87.

26/ See the section on epenthetic vowels in Chapter V.

27/ Final clusters of /Cw/ and /Cy/ are almost non-occurrent except in classicisms; only two, in /ħilw/ "sweet" and /ʕadw/ "running" are known to the writer. These two sequences will not be discussed in this paper.

28/ The American English phoneme symbols used here are those of Kenneth I. Pike in his textbook English Pronunciation (Ann Arbor: University of Michigan, 1954), p. viii, as are the examples listed after each symbol. The only change made from the Pike system is the use of the symbol /E/ instead of epsilon. The writer realizes there are various disagreements as to the phonemicization of English. The Pike system, chosen for use in this paper, offers a convenient basis for comparison of English and Egyptian Arabic.

29/ This analysis of Egyptian vowels is basically that of Richard S. Harrell in his Phonology. The following differences should be noted: 1) Long vowels are indicated by writing the letter twice, as in the textbook for the course in Egyptian Arabic, rather than by using a length mark as is done in the Phonology. This does not imply any difference in analysis. 2) In addition to the eight vowel phonemes listed above, Dr. Harrell recognizes three others: "epenthetic" /o/ and /e/, and a voiceless syllable pulse /-/. In this paper these two epenthetic vowels are written as in the textbook, as /(u)/ and /(i)/, in addition to the third one /(a)/, which is phonologically although not morphologically identifiable with /a/. Epenthetic vowels are discussed briefly at the end of this chapter. The voiceless syllable pulse /-/, which alternates with prestress /i/ or /u/, or with the epenthetic vowels, is not indicated in the textbook; it never attracted the attention of the students, the informants, or the writer, and will not be discussed in this paper.

30/ The phonetic descriptions of Egyptian vowels and their various allophones in this chapter are abstracted from the chapter on vowels, pp. 45-68, in Harrell's Phonology.

31/ The amount of free variation in this vowel first struck the writer during a conversation with a group of Egyptian students at the American University at Cairo. These students were talking about a university dormitory which is named Hill House, presumably after an American benefactor. Whoever had selected the name for this dormitory could not have been familiar with Arabic vowels, or he would never have chosen the name Hill. Every member of the group of Egyptian students, with a perfectly straight face, pronounced the name with the vowel of "set".

32/ In separate experiments with three Americans who had linguistic training but no knowledge of Arabic, all three heard the first vowels of the words /ḥilw/ and /balad/ as identical or very similar. The same result was obtained with the second vowel of /'aḥibb/ and the first vowel of /laban/. Note, however, that these "overlapping" allophones of /i/ and /a/ never occur in the same environment. The /i/ of /ḥilw/ could not be confused with /a/ by an Egyptian because /a/ after /ḥ/ is a lower, more backed allophone than the [ɛ] of /balad/.

33/ Dr. Richard S. Harrell brought this case of free variation to my attention. This point is not discussed in his Phonology.

34/ Harrell (Phonology, p. 51) uses the symbol [a] for this vowel.

35/ Harrell (Phonology, p. 51) uses only the symbol [æ], not [ɛ].

36/ A long vowel, as in /tiruuḥ/ "you go" becomes short when it is followed by two consonants rather than one, as in /matruḥš/ "you don't go".

37/ The phonetic transcription of American vowels used here is based on George L. Trager and Henry Lee Smith, An Outline of English Structure (Washington: American Council of Learned Societies, 1957), pp. 15-17.

38/ For statistics on comparative length of American vowels, see Morris Swadesh, "On the Analysis of English Syllabics", Language, Vol. XXIII (April-June, 1947), p. 139.

39/ This situation of free variation in stress was pointed out to the writer by Dr. Richard S. Harrell. The point is not discussed in his Phonology.

40/ An interesting corollary to this situation is the hearing of final voiced consonants as voiceless, when they follow short /a/. No examples of this phenomenon occurred during the course under discussion, but the writer consistently heard the word /'abyaḍ/ "white" as ending with final /t/ or /ṭ/, during her stay in Egypt. Apparently the length of the second /a/ ([ɑ']) was closer to the vowel in "cot" than to that of "cod". (It is also possible, of course, that the Egyptian speakers were devoicing the final /ḍ/.)

41/ A distinction should be made here between the "primary emphatics", i.e., /ṭ ḍ ṣ ẓ/, which occur freely with other vowels and consonants (subject to the limitations mentioned in Chapter III), and the other two emphatics. Emphatic /ṛ/ occurs only before or after the phonemes /a/ and /aa/, and occasionally before or after /u/ or /i/. Emphatic /ḷ/ is extremely rare. The instances of emphasis in consonants other than these six are too few to be considered in this paper. The comments on emphasis in the remainder of this chapter apply mainly to emphasis centering on the primary emphatics.

42/ Harrell, Phonology, p. 79.

43/ Harrell, Phonology, p. 69.

44/ Ibid.

45/ This impression of "forcefulness" seems to be in accord with the statements of Marçais that articulation of the emphatics involves expelling more air and requires greater tension of the muscles of the lower jaw than does articulation of non-emphatics. Ph. Marçais, "L'articulation de l'emphase dans un parler arabe maghrébin," Annales de l'Institut d'Études Orientales, Faculté des Lettres de l'Université d'Alger, Tome VII, 1948, pp. 7, 9.

46/ Harrell, Phonology, p. 70.

47/ Note that while an American may "hear" the vowel of his word "bought" in an Egyptian word containing emphatic /aa/, this Egyptian back vowel is always unrounded. If an American uses the rounded vowel of "bought" in pronouncing emphatic /aa/, the Egyptian will be likely to hear the vowel as Arabic /oo/.

48/ In considering the question of why a /d/ should be acceptable here, Dr. Richard S. Harrell pointed out that there is less aspiration in the emphatic /ṭ/ than in the unemphatic /t/.

Marçais (op. cit. p. 26) notes that in an intervocalic /ṭ/ the voicing of the previous vowel lasts longer and the voicing of the following vowel begins sooner, than in the case of the unemphatic /t/. He quotes the Arab grammarians as saying that if one removes the emphasis from /ṭ/ it becomes /d/. It is probable that in English invervocalic /t/ and /d/ are differentiated at least in part by this same factor of shorter closure. That this is the case with the contrast of English /p/ and /b/ in intervocalic position has been verified

by experiments with sound spectrograms and tape splicing. See Leigh Lisker, "Closure Duration and the Intervocalic Voiced-Voiceless Distinction in English", Language, Vol. XXXIII (January-March, 1957), pp. 42-49.

49/ Robert Lado notes that in general the most difficult phonological problem of all is where two allophones of a learner's phoneme constitute two phonemes in the target language. He cites the example of English /d/ and /ð/ versus Spanish /d/, a contrast which causes difficulties for Spanish speakers learning English. See Robert Lado, Linguistics across Cultures (Ann Arbor: University of Michigan Press, 1957), pp. 14-15.

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